

**EPA Superfund
Record of Decision:**

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July 1994

EPA Superfund
Record of Decision:

Townsend Saw Chain Company Site,
Pontiac, SC

RECORD OF DECISION

INTERIM REMEDIAL ACTION FOR OFFSITE GROUNDWATER MIGRATION

TOWNSEND SAW CHAIN COMPANY SITE

PONTIAC, RICHLAND COUNTY
SOUTH CAROLINA

PREPARED BY:

U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IV
ATLANTA, GEORGIA

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Townsend Saw Chain Company Site, Pontiac, Richland County, South Carolina.

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected interim remedial action for the Townsend Saw Chain Company Site, Pontiac, Richland County, South Carolina, which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Contingency Plan (NCP). This decision is based on the administrative record file for this Site. The State of South Carolina concurs with the selected remedy.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Record of Decision (ROD), may present an imminent and substantial endangerment to public health, welfare, or the environment.

DESCRIPTION OF THE REMEDY

The purpose of this interim action is to prevent the continued offsite migration of the plume of contaminated groundwater. As a result of the Site remedial investigation, the offsite area affected by chromium contamination in the surficial aquifer was found to extend a much greater distance from the Site than previously known. Although the offsite groundwater data is limited, concentrations at numerous distant sampling points significantly exceed federal standards for chromium. The nearest private water wells do not show contamination by chromium; however, these wells are supplied from the underlying Middendorf Aquifer and/or from lower portions of the surficial aquifer, thus presenting a potential threat to human health. Additionally, because the RI work to date has shown that the contaminated groundwater discharges to a tributary and a creek, a potential threat exists to the environment within and surrounding those surface water bodies.

The interim action described in this Record of Decision will expedite the mitigation of these threats through the design, installation, and operation of a groundwater pump-and-treat

system. The system will intercept the migrating groundwater along the periphery of the plume, or at more appropriate, locations as determined from a pre-design-phase hydrogeologic study, and direct the affected groundwater to onsite water treatment equipment. Options for the ultimate disposal of the treated groundwater, including discharge to a Publicly-Owned Treatment Works (POTW), to a creek via NPDES permit, to an underground injection well system, or another, to-be-determined disposal option, will be evaluated during the design effort for this action, and may be further developed in the final Site FS or in remedial design following the final ROD.

The components of this interim action include:

1. Planning and timely execution of a pre-design-phase hydrogeologic investigation, to accomplish such detailed hydrogeologic characterization of the offsite groundwater contamination as is necessary to support the remedial design of a groundwater pump-and-treat system which will, as a minimum, prevent further offsite migration and enlargement of the contaminant plume; and
2. Expeditionary design and construction of such a system, and initiation of groundwater pump-and-treat operations.

This action is not the final remedial action for this Site. Subsequent actions may be planned to fully address this and other potential threats posed by conditions at the Site. These actions will be defined when the RI/FS is complete. Other potential threats at this Site include soil contamination and possible ecological damage in the area of the unnamed, offsite tributary northeast of the Site.

STATUTORY DETERMINATIONS

This interim action is protective of human health and the environment, complies with Federal and State applicable or relevant and appropriate requirements for this limited-scope action, and is cost-effective. Although this interim action is not intended to address fully the statutory mandate for permanence and treatment to the maximum extent practicable, this interim action does utilize treatment and thus is in furtherance of that statutory mandate. Because this action does not constitute the final remedy for the Site, the statutory preference for remedies that employ treatment that reduces toxicity, mobility or volume as a principal element, although partially addressed in this interim remedy, will be addressed by the final response action. Subsequent actions are planned to fully address the threats posed by the conditions at this Site. Because contaminants present in groundwater will remain above health-based levels until the final remediation is completed

at the Site, a review will be conducted within five years after commencement of the remedial action, to ensure that the remedy continues to provide adequate protection of human health and the environment. Because this is an interim action ROD, review of this Site and of this remedy will be ongoing as EPA continues to develop final remedial alternatives for the Site.

The State of South Carolina concurs with the selection of this interim remedial alternative.

Patrick M. Tobin	12-22-93
Acting Regional Administrator	Date

RECORD OF DECISION
INTERIM ACTION FOR OFFSITE GROUNDWATER MIGRATION
TOWNSEND SAW CHAIN COMPANY SITE

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INTERIM ACTION RECORD OF DECISION
TOWNSEND SAW CHAIN COMPANY SITE
Pontiac, Richland County, South Carolina

1.0 INTRODUCTION

The Townsend Saw Chain Site is a small manufacturing facility located approximately 15 miles east-northeast of Columbia, South Carolina (Figure 1). The facility is presently owned by Homelite Division of Textron, Inc. ("Textron"), and managed by the Homelite Division ("Homelite") located in Charlotte North Carolina. In operation since 1972, the facility is used for the manufacture of the saw chain and saw bar components of chain saws. Prior to 1972, between 1965 and 1971, Dictaphone Corporation manufactured specialized recording equipment at the facility.

Between 1966 and 1981, under both Dictaphone and Townsend Saw Chain Company (later Textron), waste rinsewaters produced during metals-plating processes were disposed of by direct discharge to the ground surface in the low-lying "waste pond" areas adjacent to the facility on the north side. These discharges caused contamination of Site groundwater, primarily by chromium.

The South Carolina Department of Health and Environmental Control (SCDHEC) has overseen environmental investigations and ongoing remediation of groundwater at the Site since 1982. The Site was evaluated by EPA for possible inclusion on the National Priorities List in 1987, using the Hazard Ranking System (HRS). Because of the large number of people in the surrounding area served by water wells, the Site was assigned an HRS score of 35.94, and was proposed for listing on the NPL in June 1988. The Site was listed on the NPL in February 1990.

In August 1991, Homelite Textron, Inc. agreed to perform a Remedial Investigation/Feasibility Study (RI/FS) at the Townsend Site. RI field work began in May 1992 and the RI Report is presently in preparation. The major preliminary finding of the RI is that the areal extent of chromium-contaminated groundwater in the surficial aquifer is greater than previously believed. The precise extent of groundwater contamination is not yet known, but current data indicate that nearby potable water wells could be impacted at levels above Federal and state groundwater quality standards, unless measures are taken to intercept and/or control the offsite movement of the contaminant plume. This future potential risk to human health will be reduced or eliminated by the proposed Interim Remedial Action described in this Record of Decision.

<Figure>

FIGURE 1
SITE LOCATION MAP

TOWNSEND SAW CHAIN COMPANY SITE

2.0 SITE LOCATION AND DESCRIPTION

The Site is located in Richland County, South Carolina, approximately 15 miles east-northeast of Columbia, at the intersection of Interstate Highway 20 and State Highway 53 (Spears Creek Church Road). The nearest municipality is the town of Pontiac. Fort Jackson military reservation is located across Interstate 20 south of the Site (Figure 2).

The facility property consists of approximately 50 acres and is surrounded by a barbed-wire fence. During the RI, the five study areas shown on Figure 3 were investigated on the facility property. Offsite, across SC Road 53 (Spears Creek Church Road) approximately 600 feet northeast of the property boundary, a small seep or spring forms the origin of an unnamed tributary of Spears Creek. Throughout this document, the terms onsite and offsite are used to denote locations within the facility property (onsite), and those across SC Road 53 to the northeast, east and east-southeast (offsite).

2.1 Site Topography and Drainage

The Site lies within the Upper Coastal Plain physiographic province. Topographically, the region is characterized by flat or gently rolling terrain dissected by densely vegetated streams and creeks. Soils in the area consist predominantly of quartz sand, resulting in high soil permeability and rapid infiltration of rainwater into the underlying geologic units. There is little or no surface runoff.

Elevations on Site range from 350 to 375 feet above mean sea level. The Site is relatively flat. There is no direct (surface) drainage of any portion of the Site to drainage features. The nearest significant drainage is the above-mentioned spring, which feeds an unnamed tributary of Spears Creek. The tributary flows northeastward to its confluence with Spears Creek approximately 3700 feet northeast of the facility.

2.2 Geologic and Hydrogeologic Setting

The Upper Coastal Plain province is underlain by a seaward-dipping wedge of unconsolidated sediments overlying crystalline bedrock. The sandy surface soils (the Lakeland and Kershaw soil series) were formed from Tertiary marine and eolian (wind-deposited) sands. These soils are typically gray to white and give the White Sand Hills region its name.

Underlying these soils is the upper Cretaceous Middendorf Formation (previously designated the Tuscaloosa Formation). The Middendorf consist of sands and kaolinitic clays representing fluvial and

<Figure>

FIGURE 2
SITE AREA MAP
TOWNSEND SAW CHAIN COMPANY SITE

<Figure>

FIGURE 3
SITE LAYOUT MAP
TOWNSEND SAW CHAIN COMPANY SITE

deltaic environments. Subsurface structures present in these sediments include stream channels, overbank deposits, channel scours and fills, and floodplain deposits. Locally, such structures may control groundwater flow patterns. The formation is approximately 200 feet thick in the area of the Site.

Sand strata within the Middendorf are productive aquifers, and the formation serves as a major aquifer in South Carolina. Yields of 10 to 25 gallons per minute (gpm) from wells screened at depths of 50-100 feet, and up to several hundred gpm from those screened from 150-200 feet, are obtained in the Fort Jackson area. Groundwater in the area is classified by EPA as Class IIA and by South Carolina as Class GB.

3.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

In 1964, Dictaphone Corporation purchased an approximately 100-acre parcel of land, which eventually became the Site, and constructed a small manufacturing facility to be used primarily for the assembly of certain models of the company's line of office recording equipment. Details of the operations used are unavailable, but two permits issued by the State of South Carolina indicate that wastewaters generated onsite contained low levels of zinc, cyanide, chromium (chromate ion) and residues from acid and alkali cleaning. Operations on site were permitted for the period between June 1966 and June 1971.

Townsend Saw Chain Company purchased the Site in June of 1971. Their operations onsite began in July 1972. From that time to the present, the main operation of the facility has been the manufacture and assembly of saw chains for chain saws. Processes which comprise this overall operation include metal punch-pressing, metal plating (chromium), heat treatment (heat quench bath), a rust-preventative bath, and metal parts cleaning and finishing. Wastewaters produced by these processes contained chromium, cadmium, cyanide, nitrite and nitrate salts, and several volatile organic compounds (VOCs).

Between 1966 and 1981, under both Dictaphone and Townsend Saw Chain Company (later Textron), waste rinsewaters produced during the metals-plating and

other processes described above, were disposed of by direct discharge to the ground surface in the low-lying "waste pond" areas adjacent to the facility on the north side. These discharges, which occurred over a period of approximately 15 years, are the origin of the onsite groundwater contamination. In 1982, after the South Carolina Department of Health and Environmental Control (SCDHEC) investigated the site, Textron was fined by the State for violations of the established wastewater treatment rules. Investigations since 1982 have confirmed the

presence of groundwater contaminated by chromium and nitrate onsite and offsite, as well as trace groundwater concentrations of volatile organic compounds (VOCs).

Since 1982, SCDHEC has continued to oversee Textron's remediation program for groundwater. In 1982, a groundwater treatment system was installed, consisting of five extraction (pumping) wells, chemical treatment tanks, and a spray or irrigation field for disposal of the treated water. This system is still in operation. Groundwater is extracted, chemically treated to the applicable South Carolina groundwater quality standard for chromium (0.050 mg/l), and then discharged to the spray field. Plant process wastewater is also treated together with the contaminated groundwater. Performance of the system and conditions at the spray field are monitored by SCDHEC.

In 1987, SCDHEC identified problems in the treatment system's design and performance. To address those deficiencies, a subsequent 1988 modification to the 1982 Court Order directed Homelite to further investigate and define the extent of groundwater contamination, and to investigate Site hydrogeology as necessary to modify the system's design. A report with design revisions was submitted to SCDHEC in 1990, and following SCDHEC review, again in December 1991. The redesign effort has been completed and operation of the expanded pump-and-treat system (referred to as the "enhanced system") will begin in February or March 1994.

Between 1985 and 1988, SCDHEC and EPA took the necessary steps to list the Site on the National Priorities List (NPL), which places it in the Superfund program. A 1985 Preliminary Assessment/Site Inspection (PA/SI) by SCDHEC revealed elevated and/or above-background concentrations of chromium, lead, cadmium, arsenic, cyanide, nickel, and four VOCs in groundwater at the site. Chromium, lead, cadmium and arsenic were present at elevated levels in sediments within the waste pond area, and a stream water sample taken just across Spears Creek Church Road north of the site contained chromium and four VOCs. Based on these results, the Site was then ranked by EPA in 1987 using the Hazard Ranking System (HRS), which evaluates the potential for public exposure to site contamination. Because of the potential for migration of groundwater contaminants offsite, and the large number of people in the surrounding area served by water wells, the Site was assigned an HRS score of 35.94 and was proposed for listing on the NPL in June 1988. The Site was finalized on the NPL in February 1990.

EPA and Homelite signed an agreement in October 1991 under which Homelite agreed to conduct a Remedial Investigation/Feasibility Study (RI/FS).

Dictaphone Corporation was named as a Potentially Responsible Party (PRP) by EPA when the Agency notified bot

Homelite and Dictaphone that an RI/FS was required for the Site. Dictaphone has not participated in the RI/FS to date.

RI/FS field work began in early May 1992. The initial work included a monitor well upgrade/abandonment program to insure the reliability of the onsite and offsite monitor wells, and an initial sampling of Site soils and the monitor wells. The preliminary results of these sampling activities were presented in the "Preliminary Site Characterization Summary," submitted by the PRP's contractor to EPA in September, 1992.

Based on these initial ("Phase I") results, Homelite proposed further investigation of site groundwater and soils. This effort was designated "Phase II" and began in November 1992. Combined Phase I and II activities have included the installation and addition of 15 new monitoring wells to the previous 38-well network. Sampling has included collection and laboratory analysis of 73 groundwater samples, 17 surface water (stream) samples, 19 stream sediment samples, 35 soil samples, 10 septic tank sludge samples, 6 septic tank wastewater samples, and 10 air samples. Additionally, between January and July 1993, three rounds of offsite shallow groundwater sampling were performed. A total of 48 offsite groundwater samples were collected. After a delay during which access to surrounding properties was obtained, offsite groundwater sampling was continued during June and July 1993. In late June 1993, EPA decided to move forward with an Interim Action at the Site.

4.0 HIGHLIGHTS OF COMMUNITY PARTICIPATION

During the workplan preparation phase of the RI, EPA established an information repository at the nearest library, the Richland County Northeast Branch Library in east Columbia. Materials placed at the repository at that time (April 1992) included background information on Superfund and on the Site. Later, in December 1992, the Administrative Record (AR) for the Townsend Saw Chain Site was established. Upon EPA approval of the PRP's RI/FS work plans, the plans were then added to the AR.

An RI "kickoff" public meeting was held by EPA at Pontiac Elementary School on April 22, 1992. Approximately 70 persons attended this meeting. Most public questions and concerns centered around two issues: the proximity of the Site to Pontiac Elementary School, and the long period of groundwater cleanup that has transpired without completion of the cleanup effort. EPA staff explained the lack of any health threats to the school children based on the known situation at that time, and that the RI work included investigation of any such possibilities. EPA and SCDHEC officials also explained the specific details of Homelite's

groundwater remediation activities, their status, and EPA's RI objectives in regards to groundwater contamination.

Following completion of Phase II field work in the summer of 1993, EPA prepared a Fact Sheet to provide public notice of EPA's proposed interim action, to establish a public comment period, and to solicit public comments. The Proposed Plan Fact Sheet established a public comment period from August 20, 1993, to September 20, 1993. Prior to the start of the comment period, a focused Feasibility Study document, prepared by the PRP's contractor and entitled "Technical Memorandum on Interim Remedial Action," was made available at the information repository. This document outlines the specifics of the Interim Action to the degree possible with current information, and provides preliminary evaluations of the possible options for groundwater treatment and disposal to be considered in full in the Interim Action. The Technical Memorandum was then officially added to the AR on August 18, 1993. A notice to area citizens concerning the Proposed Plan public meeting was published in Columbia's daily newspaper, The State, on August 20, 1993.

An Interim Action Proposed Plan public meeting was held to present the Interim Remedial Action Proposed Plan to the public on August 31, 1993, at Pontiac Elementary School. Approximately 70 persons attended the meeting. The public expressed a great deal of interest in the Interim Remedial Action. Most questions concerned EPA's planned precautionary sampling of four private water wells at the southwest end of Woodcreek Lake. Details concerning area residents' concerns are provided in the Responsiveness Summary comprising Appendix A to this ROD.

5.0 SCOPE AND ROLE OF THE INTERIM ACTION WITHIN SITE STRATEGY

The scope of the proposed action includes two components: 1) expedited design and construction of a groundwater pump-and-treat system to prevent or minimize continued offsite migration of contaminated groundwater; and, prior to the design effort, 2) planning and conduct of a focused hydrogeologic study to support the design.

The Interim Action addresses groundwater contamination, which at this time appears to be the principal threat posed by the Site. However, this is not the final remedial action at this site. Following completion of the FS, EPA will issue a Proposed Plan for a final remedial action (remedy) at this Site. It will also address environmental contamination in other media (soil, surface water) in addition to groundwater. It will also consider the adequacy of, or possible modifications to, the groundwater pump-and-treat system proposed in this Interim Action, for effectively

cleaning up all contaminated groundwater resulting from the Site. Under the current schedule, a ROD would be issued by EPA in the summer of 1994.

6.0 SUMMARY OF SITE CHARACTERISTICS

This Interim Action is concerned with the offsite migration of contaminated

groundwater. Therefore, this section provides a summary of those site characteristics most related to this aspect of Site contamination.

6.1 Site-Specific Geology and Hydrogeology

Boring logs from the RI and from past investigations have been used to develop an understanding of Site geology. Based on stratigraphic and hydrogeologic characteristics, sediments underlying the Site can be divided into three units:

Unit I is exposed at the surface and consists of interbedded and alternating layers of sand, silty or clayey sand, and silt or clay lenses. These various strata are apparently hydraulically connected. Groundwater occurrence and movement in Unit I is controlled by the types of sediment strata present, and their configuration. Perched water zones occur, for example, in the area of the former waste ponds.

Unit II is a low-permeability confining unit consisting of hard, dry, kaolinitic silty clays or clayey silt. Unit II appears to be laterally continuous on the Site property. The RI work to date has not revealed any locations where Unit II is absent; however, its continuity and extent in offsite areas has not yet been determined.

Unit III consists of slightly silty, fine- to medium-grained sand. Because few Site borings to date have penetrated into Unit III, its hydrogeologic and stratigraphic characteristics are not well known. Two deep wells recently installed in the offsite area will provide further information on unit III.

The lower portion of unit I, and all of units II and III are part of the Middendorf Formation. It is important to note that the simple, general outline of units I-III given above is not meant to infer that simple patterns of groundwater flow and occurrence are present. Viewed as a whole, the subsurface arrangement of various sediment lenses and layers, having different grain sizes and hydrologic properties, creates a complex geometry and complicates attempts to locate plume boundaries or model Site groundwater flow patterns.

6.2 Preliminary RI Findings: Extent of Groundwater Contamination

The RI Report is presently in preparation. The following summary provides a preliminary overview of the RI results to date, particularly with respect to groundwater.

Sampling of the monitoring wells on the Site and across Spears Creek Church Road confirmed that the chromium and nitrate contamination extends offsite to the northeast. However, Phase II offsite groundwater sampling further showed that the areal extent of chromium-contaminated groundwater in the shallow (surficial) aquifer is much larger than previously believed. The extent of contamination by nitrate is not known, as the offsite sampling was intended to identify the main Site contaminant of concern, chromium. Figure

4 illustrates the areal extent of the contamination defined to date, and the locations from which the 48 surficial aquifer samples were collected. No pattern was evident in the distribution of the detected chromium levels. Levels of chromium in the 48 offsite samples (Table 1) generally ranged from 0.20 mg/l to 2.50 mg/l, although two samples (TW-6 and HP-20) registered significantly higher. Delineation of the horizontal and vertical boundaries of the contaminated groundwater (the "plume") is currently underway.

The offsite groundwater sampling has, thus far, been accomplished primarily by using direct-push techniques (DPT) in order to get analytical data (Table 1) as rapidly as possible. Samples have also been recovered from hand-auger borings with temporarily-installed wells, and from surface seeps. Direct-push sample collection involves the use of a special device which drives hollow rods downward through the overlying soil or geologic unit to reach groundwater or a desired depth. DPT samples can be collected rapidly, inexpensively, and without disturbance to the ground surface.

It should be noted that analytical data collected via DPT may have limited accuracy due to inherent problems in the sampling methods used. One common problem is that the analyses can show more chromium than is actually present and moving in the groundwater, due to recovery of samples high in turbidity (clays or other fine particulates). Nonetheless, even with these limitations, the data indicate that shallow groundwater across the large offsite area shown on Figure 3 is contaminated by chromium at levels ranging up to many times the maximum contaminant level (MCL). MCLs have been established by EPA and the states pursuant to the Safe Drinking Water Act of 1974, and specify the maximum permissible amount of a substance in public potable water supplies, and within aquifers used as potable water sources. EPA believes that a concentration of a substance in potable water supplies at or below the respective MCL will not cause unacceptable risk to human health. For

<Figure>

FIGURE 4
OFFSITE GROUNDWATER CONTAMINATION
TOWNSEND SAW CHAIN COMPANY SITE

<Figure>

chromium, the South Carolina MCL is 0.05 milligrams per liter (mg/l), while the Federal MCL is 0.10 mg/l.

Reconnaissance of the offsite area bounded by Interstate 20, Spears Creek, and the unnamed tributary, has revealed a number of scattered, small

trash-dumping locations. The presence of these trash dumps, the occurrence of the two unusually elevated groundwater samples (11.20 mg/l and 4.00 mg/l), and the lack of historical knowledge about the offsite area, together support the possibility that sources other than the Site could be contributing contaminants to groundwater. This issue will be further investigated during the Interim Action.

As a precaution, Homelite sampled 7 private wells along the south side of Interstate Highway 20. These samples all indicated less than 0.004 mg/l for chromium and below the quantification limit (and below MCLs) for VOCs.

As noted above, the RI surface water samples also indicate potential risks to the ecological health of the unnamed offsite tributary. An upcoming Ecological Assessment (EA) by Homelite in this area, with EPA involvement and oversight, should resolve the issue of whether ecological damage has occurred. The EA results will be considered in the FS for the Site.

7.0 SUMMARY OF SITE RISK

At this time, the Baseline Risk Assessment has not yet been completed. However, the groundwater sampling results clearly indicate that chromium-contaminated groundwater is migrating offsite in the direction of private water wells, located to the southeast and east of the Site. As noted above, even allowing for some inaccuracy in the direct-push sample results, chromium levels in groundwater range up to 2.50 mg/l (excluding two higher samples), many times above the Federal and State MCLs (0.10 and 0.05 mg/l, respectively). The main contaminant of concern is chromium, although nitrate and several VOCs have been detected at levels above MCLs in offsite wells.

While the contamination may be limited to the shallow aquifer, nearby private water wells could still be impacted at levels above the MCL, unless measures are taken to intercept and/or control the offsite movement of the contaminant plume. Most wells registered with the State of South Carolina draw water from the deeper aquifer (the Middendorf Aquifer), from which no offsite data is available yet. However, the depths of some of the registered wells are not known. EPA believes that water supply wells at some of the homes surrounding Woodcreek Lake are fairly shallow, possibly drawing water from the shallow aquifer. The purpose of the Interim Action

is to minimize or prevent the continued offsite movement of contaminated groundwater. Potential risks to human health posed by consumption of contaminated groundwater will be reduced or eliminated by the proposed Interim Action.

As noted above, the RI surface water samples also indicate risks to the ecological health of the unnamed offsite tributary. An Ecological Assessment in this area will be conducted as part of the FS. The data collection portion of this Interim Action will provide further information useful to the Ecological Assessment. Also, depending on the actual well locations, the pump-and-treat system may improve surface water quality by

removing contaminated groundwater, thus preventing it from reaching the tributary.

8.0 DESCRIPTION OF ALTERNATIVES

EPA considered two alternatives before proposing this Interim Action. The alternatives are briefly described below.

Alternative 1: No Action. CERCLA requires EPA to consider a "no-action alternative" at every site for which remedial action is proposed, to serve as a baseline for comparison with other alternatives.

Under the No Action Alternative, EPA would take no actions to minimize or prevent the continued offsite movement of contaminated groundwater. However, because contamination would remain onsite, EPA would require a review of this remedy every five years in accordance with CERCLA. This would constitute an O&M cost, and the only cost under this alternative.

Construction Cost:	\$ 0
Operation and Maintenance (O&M) Costs:	
(six 5-year reviews over 30 years,	
\$15,000 each, discounted at 5%/year)	\$ 41,70
Total Costs:	\$ 41,700

Time Required to Implement Remedy: None.

Alternative 2: Interim Action Pump-and-Treat System. In order to minimize or prevent the continued offsite movement of contaminated groundwater, a pump-and-treat system that will intercept and capture the contaminated groundwater at the periphery of the plume, or at other appropriate locations as determined during design, will be designed and built. After groundwater is extracted, the system will direct it to a treatment facility. The Interim Action Pump-and-Treat System (hereafter referred to as the "Interim System")

will, as a minimum, allow control over the offsite migration of the contaminated groundwater.

The Interim Action has two components:

1. Pre-Design Hydrogeologic Study
2. Design, Construction and Operation of the Interim Action Pump-and-Treat System

The first component is a short, focused investigation of the hydrogeologic characteristics of the offsite area. Detailed hydrogeologic information beyond the scope of the RI/FS is needed to successfully design a system that will accomplish the objectives described above. Also, the locations of the worst chromium and VOC contamination and any other highly contaminated areas

(including, possibly, soil contamination) must be determined. Approximately three months will be required to complete this effort.

Design; construction and operation of the Interim Groundwater Pump-and-Treat System is the second component of the Interim Remedial Action. The design will be expedited to correspond to the limited objectives of the Interim Action; i.e., peripheral control of the plume rather than the aggressive pumping and treating of all contaminated groundwater in the offsite area. Issues which must be resolved during design include: the number and placement of pumping wells; the type and degree of treatment required, including whether treatment for VOCs is required in addition to chromium; where to discharge the treated groundwater; and what standard must be achieved to meet the influent requirements of the chosen discharge option. These issues are interrelated; for example, the type of discharge will strongly affect the degree of treatment. The design should take approximately four to five months to complete.

Construction and operation of the Interim System will immediately follow EPA's approval of the design. The Interim System will consist of between 6 and 8 wells, or another number as determined during the remedial design, submersible or other appropriate pumps, pipes/lines, a treatment unit to remove or reduce chromium, and other appurtenances as necessary to complete the system. After the groundwater is treated, it will be discharged to either: 1) a local publicly-owned treatment works (POTW), 2) Spears Creek via an appropriate NPDES permit (National Pollution Discharge Elimination System), or 3) another, to-be-determined disposal option. As stated above the discharge option to be used will be determined in the design phase. Three to five months will be needed to construct the Interim System.

In accordance with CERCLA, federal and state requirements, referred to as Applicable or Relevant and Appropriate Requirements (ARARs), are recognized for this Interim Action. At this time, EPA believes

that the Interim Action will meet all ARARs which pertain to groundwater as a source for potable drinking water, and to the treatment technologies which groundwater remediation will involve. These ARARs include specific provisions of the Safe Drinking Water Act, the South Carolina Safe Drinking Water Act, the Clean Water Act, the South Carolina Pollution Control Act, the Resource Conservation and Recovery Act, the South Carolina Hazardous Waste Management Act, and the federal and state regulations which implement these statutes. More detailed information concerning ARARs is presented in Section 10.2.

The cost estimates presented below are based on the limited information available at present. O&M costs after the first year will depreciate at an estimated 7% per year. However, the present worth cost of the O&M over an anticipated period of operation cannot be calculated at this time, because the hydrogeologic data and modelling necessary to make an estimate of the length of the period of operation, are not yet available.

Design and Construction Cost (includes design cost

and treatment system equipment)	1,610,000
Operation and Maintenance (O&M) Costs:	280,050
Disposal Costs - Treated Groundwater	34,500

Total Cost Estimate	\$1,924,550
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Time to Begin Pump-and-Treat Operations:	10 - 13 months
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9.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

EPA uses nine criteria to evaluate the alternatives which could be selected. The first seven are used to evaluate the alternatives based on environmental protection, cost, and engineering feasibility issues. The preferred alternative is then further evaluated based on the final two criteria, State and community acceptance. To be selected by EPA, an alternative must meet the first two "threshold" criteria, overall protection of human health and the environment, and compliance with ARARs.

This evaluation is more limited in scope than would be the case if the Interim Action was to be the final remedy at this Site. As noted above, following completion of the FS, EPA will issue a Proposed Plan for a final remedial action (remedy) for the Site. The final remedy will reconsider the planning and design for the groundwater pump-and-treat system proposed in this Interim Action, and may propose system additions, modifications, or other actions, to accomplish remediation of all contaminated groundwater originating from this Site. Thus, this Interim Action will be consistent with the final remedy.

EPA's rationale for selecting this action is presented below, in relation to each of the nine criteria. The site-specific rationale is indicated by the " " symbol.

1. Overall Protection of Human Health and the Environment addresses the degree to which an alternative meets the requirement that it be protective of human health and the environment. This includes an assessment of how public health and environmental risks are properly eliminated, reduced or controlled through treatment, engineering controls, or controls placed on the property to restrict access and (future) development.

The No Action Alternative would not be protective of human health and the environment. Potential threats to private water well users located east and southeast of the Site will remain. Since this threshold criterion is not met, the No Action alternative is not considered further in the evaluation below.

The Interim Action Pump-and-Treat System will achieve protection of human health and the environment through interception or control of the offsite groundwater plume's movement, thereby preventing contamination of private water wells. Treatment of the contaminated groundwater will also, to some degree, reduce any ecological effects which may be occurring in the unnamed tributary to Spears Creek.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) addresses whether or not an alternative complies with all state and federal environmental and public health laws and requirements that apply, or are relevant and appropriate, to the conditions and cleanup options at a specific site. If an ARAR cannot be met, the analysis of the alternative must provide the grounds for invoking a statutory waiver.

The Interim Action will meet ARARs concerning groundwater. The major ARARs for this action include specific provisions of the Clean Water Act, the South Carolina Water Pollution Control Act, and the associated State and Federal regulations that implement those two statutes.

3. Long-Term Effectiveness and Permanence refers to the ability of an alternative to maintain reliable protection of human health and the environment over time once the cleanup goals have been met.

Long-term effectiveness cannot be evaluated at this point, but rather must be evaluated together with any additional groundwater remedial actions which may be proposed in the final Proposed Plan for this Site. The long-term

effectiveness and permanence of all proposed groundwater cleanup actions will be considered at that time.

4. Reduction of Toxicity, Mobility, and Volume addresses the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of the hazardous substance as their principal element.

Capture and/or control of the contaminant plume will reduce the mobility of the contaminated groundwater. Treatment of the groundwater will reduce both the toxicity and volume of contaminated groundwater.

5. Short-Term Effectiveness addresses the impacts of the alternative on human health and the environment during the construction and implementation phase, until remedial action objectives have been met.

No adverse short-term effects are expected to result from this action. Most of the offsite area known to be affected is presently undeveloped. Site work will adhere to a Site-specific Health and Safety Plan to reduce any potential short-term risks to workers and nearby residents.

6. Implementability refers to the technical and administrative feasibility of implementing an alternative, including the availability of various services and materials required for its implementation.

The Interim Action should be easily implementable, in that the materials and services needed to design and construct the groundwater system are readily available.

7. Cost consists of the capital (up-front) costs of implementing an

alternative, plus the costs to operate and maintain the alternative over the long term. Under this criterion, the cost-effectiveness of the alternative can be evaluated.

The cost of the Interim Action is estimated at approximately \$1,924,550, which includes a first-year annual operating cost of \$280,050. The present net worth of long-term O&M costs cannot be estimated yet, but is expected to constitute the major portion of the overall cost of the action.

8. State Acceptance addresses whether, based on its review of the RI, FS, and Proposed Plan, the State concurs with, opposes, or has no comments on the alternative proposed by EPA as the selected alternative (or "remedy").

The State of South Carolina concurs with this Interim Action.

9. Community Acceptance addresses whether the public agrees with EPA's selection of the alternative.

A public meeting was held on August 31, 1993, to present the Proposed Plan for the Interim Remedial Action to the community. Comments at the meeting were generally supportive of the proposed action. Extension of the public comment period has not been requested. There is strong local interest and concern from residents living around Woodcreek Lake and from those east of Spears Creek (Figure 4).

10.0 THE SELECTED REMEDY

Based upon consideration of the requirements of CERCLA, the NCP, consideration of the alternatives, and public and state comments, EPA has selected an interim remedy that addresses offsite migration of contaminated groundwater at this Site. Although a numerical estimate of the risks which will remain at the Site upon completion of this remedy cannot be made at present, the achievement of the MCLs for groundwater will insure that risks due to groundwater use and consumption will be within EPA's acceptable risk range of 1×10^{-4} to 1×10^{-6} for carcinogens and below a hazard quotient of 1 for noncarcinogens, which is considered protective of human health and the environment.

The selected interim remedy for this Site is:

Alternative 2: Interim Action Pump-and-Treat System.

The estimated total cost of the remedy for the first year (design, construction, 1-year operation) is \$1,924,550.

10.1 Description of the Interim Remedial Action

As described in section 8.0, the Interim Remedial Action has two components: 1) a pre-design hydrogeologic study, and 2) design, construction and operation of an Interim Action pump-and-treat system.

In order to expeditiously design a pump-and-treat system to achieve the goals of this Interim Action, the hydrogeologic characteristics of the offsite area will be investigated. Hydrogeologic and other information to be collected includes: 1) definition of the full extent of the contaminated groundwater, 2) aquifer characteristics including yield, transmissivity and storativity, 3) locations of the worst-contaminated areas and/or preferred flow pathways, 4) confirmation or determination of the vertical extent of groundwater

contamination, 5) presence and extent of VOCs, 6) location and nature of any other sources contributing to groundwater contamination, and 7) data and modelling to investigate the apparent mobility of trivalent chromium (Cr[3+]) in Site-area groundwater, and the presence or absence of hexavalent chromium (Cr [6+]).

The main component of this Interim Remedial Action is the design, construction and operation of a pump-and-treat system that will intercept and capture the contaminated groundwater and direct it to a treatment facility, followed by discharge of the treated water. The Interim Remedial Action Pump-and-Treat System, or "Interim System" will, as a minimum, prevent, or provide control over, the offsite migration of the contaminated groundwater.

Design of the Interim System will be based on the results of the focused hydrogeologic study described above. Issues which must be resolved during design include, as a minimum: 1) determination of the number and placement of pumping wells, including determining the optimal locations for preventing or limiting plume movement; 2) the type and degree of treatment required, including whether treatment for VOCs is required in addition to chromium; 3) where to discharge the treated groundwater, including identification of what standard(s) must be achieved to meet the influent requirements of the chosen discharge option. These issues are interrelated; for example, the type of discharge will strongly affect the degree of treatment required.

The method of discharge of the treated groundwater, item #3 above, will also be decided in the design phase. Possible discharge options include: 1) a local publicly-owned treatment works (POTW); 2) Spears Creek via an appropriate NPDES permit (National Pollution Discharge Elimination System); or 3) another discharge option investigated during design

The design for the Interim System will be reviewed and approved by EPA. The design work will be expedited to correspond to the limited objectives of the Interim Action; i.e., a rapid response action to gain peripheral control of the plume. Construction and operation of the Interim System will follow EPA's approval of the design. The design is expected to take approximately four to five months to complete.

Construction of the Interim System will involve installation of approximately 6 to 8 extraction wells, or a different number of wells according to the EPA-approved design; submersible or other appropriate pumps, pipes/lines, and other appurtenances as necessary to complete the

system; and a treatment unit to remove or reduce chromium. After the groundwater is treated, it will be discharged via the discharge option selected during design. Based

on past experience regarding the construction of the "enhanced" pump-and-treat system on the Site (page 7), three to five months are estimated for construction of the Interim System. This timeline is contingent upon gaining appropriate access to the Site.

The specific treatment method to be used has not yet been determined, but is expected to involve the use of physical and chemical processes to remove inorganic contaminants. Typically, aeration, chemical reduction, and chemical precipitation are used in combination with phase separation and filtration, to remove metals from groundwater. Aeration of the water, normally by sparging (bubbling) air, may be used as a pretreatment step. The next process, chemical reduction, utilizes reducing agents to reduce the valence state of metal contaminants (in this case, chromium) to more easily precipitable forms. Chemical precipitation, the next step, is achieved by adjusting the pH of the groundwater to the optimum value for precipitation: metal contaminants become less soluble and are precipitated out of the water as solid particles.

Metal removal is then completed using phase separation and filtration. Phase separation processes typically add a polymer to the water to force metal precipitates to clump together or flocculate. Then, a sedimentation process is used to settle out the large floc particles. Finally, the supernatant is filtered to remove any other suspended particles not removed through sedimentation. The settled floc particles and the particles removed by the filter are typically transferred to a solids holding tank. Solids from the holding tank are then dewatered via filter press; the liquids are usually pumped back to the head of the treatment system. Dewatered solids are then collected and stored onsite until disposal.

It is assumed, at present, that the treatment of contaminated groundwater will involve the physical methods generally described above. In this case the solids produced by treatment will require management as a hazardous waste, and disposal in a RCRA-regulated landfill. Treatment and hazardous-waste management actions shall comply with the ARARs described in the following section (Section 10.2).

During the design of the Interim System, it may be determined that treatment of contaminated groundwater for VOCs is warranted. If this proves to be the case, treatment may include passage of the groundwater through an air-gas-, or steam-stripping unit to remove or reduce the concentrations of VOCs. Alternatively, VOC removal may involve using activated carbon, either for actual removal or as a "polishing" unit. Handling of the spent carbon and operation of the stripping unit shall comply with the ARARs described under the appropriate subsections of Section 10.2.

Following treatment, the groundwater shall be discharged to the selected discharge appurtenance or location. Discharge shall comply with all ARARs which are applicable, or relevant and appropriate, to the particular option.

The goal of this interim remedial action is to intercept and/or gain control over the offsite migration of contaminated groundwater. Based on the information collected during the RI and on a careful analysis of all remedial alternatives, EPA and the State of South Carolina believe that the selected groundwater remedy will achieve this goal. However, the remedy's ability to achieve the remediation goals at all points throughout the area of the plume cannot be determined until the pump-and-treat system has been implemented, modified as necessary, and the natural groundwater system's response monitored over time.

Because this is not the final remedy at this Site, contingency measures, or potential system modifications to address deficiencies of this remedy which may be identified after some period of operation, will not be addressed in this Interim Action ROD. The Interim Remedial Action will be evaluated in this regard as part of the final remedy selection process.

10.2 Applicable or Relevant and Appropriate Requirements (ARARs)

This section presents the ARARs likely to be involved in the Interim Remedial Action. Because of the limited amount of data currently available and the uncertainty concerning some details of the Interim Remedial Action, the following discussion of ARARs is necessarily general. In this manner, enough flexibility is given to allow the specifics of the Interim Remedial Action to be developed in the design phase.

10.2.1 Applicable Requirements. The specific ARARs applicable to this Interim Action will depend on the treatment and discharge options developed during the design phase. The following processes and technologies are those expected by EPA to be used in the Interim Remedial Action. Each is followed by the ARARs associated with its use. Employment of other processes or technologies may be required, however, due to development of new, unforeseen information about the Site during the design phase of the Interim Remedial Action.

Sludge generation (physical processes or VOC removal using activated carbon: Groundwater remediation involving physical processes as described above (Section 10.1) and intended to remove inorganic contaminants (metals) from groundwater, and which produce solid hazardous waste (sludge); or spent carbon used to remove organic contaminants (VOCs), shall comply with all applicable portions of the following federal and State of South Carolina regulations:

40 CFR Parts 261, 262 (Subparts A-D), 263, and 268, promulgated under the authority of the Resource Conservation and Recovery Act.

These regulations govern the identification, transportation, manifestation,

and land disposal restriction requirements of hazardous wastes. In this case, the regulations would be applicable to the sludges which will likely be produced as a result of chemical treatment of groundwater, and to spent carbon. Sludge from physical/chemical removal processes will, in all likelihood, constitute hazardous waste based on its characteristics. For the spent carbon, it is expected that the material will fail TCLP, and thus the land disposal restrictions in 40 CFR Part 268 will apply. However, if EP toxicity tests are performed and the analytical results do not exceed EP toxicity limits, then the land disposal restrictions in 40 CFR Part 268 will not apply, even though the carbon fails TCLP.

SC Reg: 61-79.124, .261, .262, .263 and .268, South Carolina Hazardous Waste Management Regulations, promulgated pursuant to the Hazardous Waste Management Act, SC Code of Laws, 1976, as amended.

Establishes criteria for identifying and handling hazardous wastes, as well as land disposal restrictions. These regulations are also applicable in exactly the same manner as described above for the federal hazardous waste regulations.

49 CFR Part 107, 171-179, promulgated under the authority of the Hazardous Materials Transportation Act.

Regulates the labelling, packaging, placarding, and transport of hazardous materials offsite. These regulations are applicable in the event hazardous wastes (sludges from treatment) are transported off-site for treatment or disposal.

Groundwater treatment for VOCs using air stripping: If it is determined during design that treatment of contaminated groundwater for VOCs is warranted, and that air stripping is to be utilized, the following ARARs will apply:

40 CFR Parts 60 and 61, promulgated under the authority of the Clean Air Act.

Includes the National Emissions Standards for Hazardous Air Pollutants (NESHAPs). Standards for emissions to the atmosphere fall under these regulations. Applicable to emissions from the air-, gas-, or steam-stripping unit if one is used for groundwater treatment for VOCs.

SC Reg. 61-62, South Carolina Air Pollution Control Regulations and Standards, promulgated pursuant to the Pollution Control Act, SC Code of Laws, 1976, as amended.

Establishes limits for emissions of hazardous air pollutants and particulate matter, and establishes acceptable ambient air quality standards within South Carolina. This regulation is applicable in the same manner as the federal regulation cited above, and only if treatment for VOCs is required.

Discharge of treated groundwater to a surface water body: In the event tha

this discharge option is accepted by EPA as the best choice, the following ARAR shall apply.

40 CFR Part 122, 125, 129, 133 and 136, CWA Discharge Limitations (CWA [Para] 301), promulgated under the authority of the Clean Water Act.

Applicable to any point discharges of wastewaters to waters of the United States. At this Site, it is applicable to discharge of treated waters from the groundwater treatment system, to any surface water body.

SC Reg. 61-68, South Carolina Water Classifications and Standards, promulgated pursuant to the Pollution Control Act, SC Code of Laws, 1976, as amended.

These regulations establish classifications for water use, and set numerical standards for protecting state waters. SC Reg. 61-68 is also applicable to discharge of treated waters from the groundwater treatment system, to any surface water body.

Discharge of the treated groundwater to a Publicly Owned Treatment Works (POTW): In the event that this option is selected, discharge of treated water will be accomplished in compliance with the following ARAR:

40 CFR [Para] 403.5, CWA Pretreatment Standards (CWA [Para] 307), promulgated under the authority of the Clean Water Act.

Regulates discharges of water to POTWs. This regulation would be applicable to discharge of treated waters from the groundwater treatment system to a local POTW.

SC Reg. 61-68, South Carolina Water Classifications and Standards, as cited above.

These regulations establish classifications for water use, and set numerical standards for protecting state waters. SC Reg.

61-68 is applicable to discharge of treated waters from the groundwater treatment system to a local POTW.

Finally, the ARAR listed below is applicable to all groundwater remediation activities undertaken pursuant to this Interim Action which involve monitoring or extraction wells.

SC Reg. 61-71, South Carolina Well Standards and Regulations, promulgated under to the Safe Drinking Water Act, SC Code of Laws, 1976, as amended.

SC Reg. 61-71 establishes standards for well construction, location and abandonment activities conducted as part of investigation or cleanup operations, at all environmental or hazardous waste sites in the State of South Carolina.

10.2.2 Relevant and Appropriate Requirements. The following regulations are considered relevant and appropriate criteria governing the groundwater remediation contemplated under this Interim Action:

40 CFR Parts 141-143, National Primary and Secondary Drinking Water Standards, promulgated under the authority of the Clean Water Act.

These regulations establish acceptable maximum levels of numerous substances in public drinking water supplies, whether publicly owned or from other sources such as groundwater. Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLGs) are specifically identified in the NCP as remedial action objectives for ground waters that are current or potential sources of drinking water supply (NCP 40 CFR [Para] 300.430(a)(1)(ii) (F)). Therefore, MCLs and MCLGs are relevant and appropriate as criteria for groundwater remediation at this Site.

SC Reg. 61-58, South Carolina Primary Drinking Water Regulations, promulgated pursuant to the Safe Drinking Water Act, SC Code of Laws, 1976, as amended.

These regulations are similar to the federal regulations described above, and are relevant and appropriate as remediation criteria for the same reasons set forth above.

10.2.3 "To Be Considered" (TBC) and Other Guidance.

The following references and regulations are designated "To Be Considered" during the design and implementation of the Interim Remedial Action.

TBC criteria for groundwater remediation:

Guidelines for Ground Water Use and Classification, EPA Ground Water Protection Strategy, U.S. EPA, 1986.

This document outlines EPA's policy of considering a site's groundwater classification in evaluating possible remedial response actions. As described under Section 2.2, groundwater at the Site is classified by EPA as Class IIA and by South Carolina as Class GB groundwater, indicating its current and potential use as a source of drinking water.

National Oceanic and Atmospheric Administration (NOAA) ER-L/ER-M Values.

These guidelines were developed as screening criteria for sediment contamination in surface water bodies, and are based on toxicity to aquatic life. While the Interim Action is not intended to address the offsite ecosystem, the ER-L/ER-M values should be considered when judging the potential impacts of remediation efforts (particularly groundwater pumping from wells) on the immediate environment in the offsite area.

40 CFR Part 131, Ambient Water Quality Criteria (CWA [Para] 304), promulgated under the authority of the Clean Water Act.

These regulations set numerical criteria for ambient water quality based on toxicity to aquatic organisms and human health. As with the NOAA values cited above, these regulations should be considered when evaluating the effects of any remediation or other activities in the offsite area.

TBC criteria for the use of air stripping to remove VOCs from groundwater:

40 CFR Part 50, National Ambient Air Quality Standards (NAAQS), promulgated under the authority of the Clean Air Act.

This regulation includes the National Ambient Air Quality Standards (NAAQS), and establishes a national baseline of ambient air quality levels. The state regulation which implements this regulation, South Carolina Reg. 62-61, will be considered applicable to the groundwater portion of the remedy if treatment of groundwater for VOC removal via air-, gas- or steam-stripping is utilized. Likewise, the NAAQS is designated TBC only if VOCs treatment of groundwater is undertaken.

Clean Air Act, [Para] 501 and 502, 1990 CAA Amendments, 42 U.S.C. [Para] 7661 and [Para] 7661(a).

The amendments will require that all "major sources" and certain other sources regulated under the CAA obtain operating permits. Although CERCLA [Para] 121(e) exempts this remedy from requiring such a permit, air/gas/steam stripping at this Site may have to comply with any substantive standards associated with such permits. Regulations have been proposed, but not promulgated, for the operating permit program. As with the above-cited regulation, the 1990 CAA amendments will be considered TBC only if groundwater treatment for VOCs is performed.

10.2.4 Other requirements. Remedial design, especially when conducted rapidly to achieve interim objectives such as those outlined in this interim ROD, often includes the discovery and use of unforeseeable but necessary requirements. Therefore, during design of the selected interim remedy, EPA may elect to designate further ARARs which apply, or are relevant and appropriate, to groundwater remediation at this Site. This would be done through a formal ROD modification process such as an Explanation of Significant Differences (ESD) or a ROD Amendment. EPA may also designate other ARARs which apply to this Action during design, or in the final remedy (final ROD) for the Site.

10.3 Performance Standards

The standards defined in this section comprise the performance standards defining successful implementation of this interim remedy.

Performance Standard No. 1: Groundwater remediation performed under this Interim Remedial Action shall prevent, or control, the offsite migration of all groundwater contaminated by chromium at levels above the applicable State of South Carolina MCL (50 micrograms (ug) per liter).

Performance Standard No. 2: Treated groundwater routed for disposal via the selected discharge option shall meet the applicable pretreatment standards or effluent limits, if any, established for that particular discharge option.

11.0 STATUTORY DETERMINATIONS

Section 121(b)(1) of CERCLA, 42 U.S.C. [Para] 9621(b)(1), states that a selected remedy must protect human health and the environment; meet ARARs (unless waived); be cost-effective; use permanent solutions, and alternative treatment technologies or resource recover

technologies to the maximum extent practicable; and finally, wherever feasible, employ treatment to reduce the toxicity, mobility or volume of the contaminants. The selected interim remedy for this Site meets the first two statutory requirements given above, and partially fulfills the others. Since this is an interim remedial action and not a final comprehensive remedy for the Site, the degree to which all statutory requirements are met cannot be assessed. The following sections discuss the degree to which the interim remedy fulfills statutory requirements.

Protection of human health and the environment: The interim remedy will remove or reduce current and future human health risks from dermal contact or ingestion of contaminated groundwater. This will be accomplished through the operation of a groundwater remediation system which will prevent or control the offsite migration of contaminated groundwater which could otherwise reach private water wells. The extracted contaminated groundwater will be treated to remove or reduce contamination. Additionally, although the Interim Action is not intended to address ecological degradation, and the presence of such effects has not yet been established, the Interim Action is nonetheless expected to have some positive impact on the local ecology by reducing the amount of contamination reaching Spears Creek.

Compliance with ARARs: The interim remedy will meet the ARARs listed in Section 10.2. of this interim ROD. The listed ARARs apply only to groundwater remediation as described for this Interim Action. Compliance with all ARARs which may apply to remediation of this Site will be addressed in the final Site ROD.

Cost effectiveness: The interim remedy is cost effective in that it will result in limiting the expansion of the area underlain by contaminated groundwater. While the anticipated costs are large, they could reasonably be expected to be greater if this Action were not undertaken. Furthermore, the treatment technologies to be considered for use are well proven and widely used.

Utilization of permanent solutions, and alternative treatment technologies or resource recovery technologies to the maximum extent practicable: Although this interim remedy is not the final action for the Site, it does represent the maximum extent to which permanent solutions and treatment can

practicably be used for this action. The treatment component of this Action will permanently reduce contaminant concentrations in the groundwater, and is thus considered a permanent solution to the problem of offsite migration of contaminated groundwater. Permanence of the Interim Action, and its long-term effectiveness, will be considered by EPA as it develops a final remedy for the Site. In view of the present groundwater situation and the need to move quickly to limit offsite

groundwater movement, EPA and the State of South Carolina believe that the selected interim remedy achieves the best possible balance of trade-offs in terms of long-term effectiveness and permanence, reduction of toxicity/mobility/volume, short-term effectiveness, implementability, and cost

Preference for treatment as a principal remedy element: Although this Interim Action is not the final remedy for the Site, the Interim System for groundwater remediation will fulfill the preference for treatment as a principal element, through extraction and treatment of contaminated groundwater.

APPENDIX A

RESPONSIVENESS SUMMARY

RESPONSIVENESS SUMMARY

TOWNSEND SAW CHAIN COMPANY SITE

1. Overview

The U. S. Environmental Protection Agency (EPA) held a public comment period from August 20, 1993 to September 20, 1993, for interested parties to comment on the preliminary Remedial Investigation/Feasibility Study (RI/FS) results and the Proposed Plan for an Interim Remedial Action at the Townsend Saw Chain Company Site in Pontiac, Richland County, South Carolina. During this period there were no requests to extend the comment period for an additional 30 days.

EPA held a public meeting at 7:00 p.m. on August 31, 1993, at Pontiac Elementary School in Pontiac, South Carolina to present the initial results of the RI/FS, to present the Proposed Plan for the Interim Remedial Action and to receive comments and questions from the public.

EPA proposed that an Interim Remedial Action be undertaken to address the offsite migration of contaminated groundwater. EPA emphasized at this meeting that the proposed action was an interim measure and not the final

remedy for the Site. The Interim Action consists of two parts: a short, focused hydrogeologic study to support the design of a groundwater pump-and-treat system, followed by expedited design and construction of a pump-and-treat system which will, as a minimum, limit or prevent the continued offsite movement of contaminated groundwater toward private water well users living east of the Site. Based on the comments received during the public comment period, the residents and local officials in the Pontiac, South Carolina area support the actions proposed by EPA.

This Responsiveness Summary provides a summary of citizens' comments and concerns identified and received at the August 31, 1993 public meeting and during the public comment period, and EPA's response to those comments and concerns. These sections and attachments follow:

- û Background of Community Involvement
- û Summary of Comments Received During the Public Comment Period and EPA's Responses
- û Attachment A: Proposed Plan for Townsend Saw Chain Compan Superfund Site
- û Attachment B: Public Notice of Public Comment Period
- û Attachment C: Proposed Plan Public Meeting Sign In Sheets
- û Attachment D: Official Transcript of the Proposed Plan Public Meeting

2. Background of Community Involvement

EPA's community relations program for the began in December of 1991, when EPA conducted community interviews with local residents and officials in order to develop a community relations plan for the Site. At that time, the main concerns expressed by residents living in areas near the Site were as follows: (1) the possibility of health threats to children attending Pontiac Elementary School, which is located approximately 500 feet northwest of the Site; and (2), concerns from persons living near, particularly east of, the Site. Many residents were surprised to learn that a final overall cleanup was not, in fact, already underway, and asked why the cleanup is taking so long.

EPA personnel conducting the interviews, including the Remedial Project Manager (RPM) and the Community Relations Coordinator (CRC), explained the current status of work, at that time, on the Site, why the Site was to be investigated under Superfund, and what would occur once field work began.

During 1992 and 1993, EPA has taken steps to keep the local community aware and informed of Site activities and findings throughout a lengthy Remedial Investigation (RI). EPA held a public "kickoff" meeting announcing the start of the RI on April 14, 1992. After the first phase of the RI was

completed, EPA added the Preliminary Site Characterization Summary to the information repository, in October 1992. During RI Phase II groundwater sampling in the winter and spring 1992-1993, the areal extent of groundwater contamination, in the east and southeast directions, was found to be much larger than previously known. Between this time and the August 1993 public meeting, the RPM and CRC initiated regular and substantial telephone contact with those landowners and residents located east of the Site. The two main contacts were the past and current presidents of the Woodcreek Lake Homeowners Association, which is comprised of persons living around Woodcreek Lake. Eleven owners of land parcels located east and south of the Site were contacted via certified letter concerning the preliminary groundwater findings, and requesting short-term access to their properties for collecting samples.

To date, public attention concerning the Site has been limited. The Site has received only infrequent coverage in the one major newspaper published in the area. There have been occasional requests to be added to the Site mailing list, which has been expanded to include additional residents living in close proximity to the Site.

EPA issued a Proposed Plan Fact Sheet in August 1993, to present the Interim Remedial Action to the public and receive public comment. There were many questions from the public, primarily concerning the possible effects to the land and groundwater in the offsite area affected by the groundwater contamination.

3. Summary of Comments Received During the Public Comment Period and Agency Responses

The Public Comment Period opened on August 20, 1993, and was closed on September 20, 1993. The Public Notice which was published in the area's local paper, The State, can be found in Attachment B. No written comments were received during the public comment period.

As noted above, on August 31, 1993, EPA held a public meeting to present the Proposed Plan for the Interim Remedial Action to the community and to receive comments. All comments received at this public meeting are summarized below. The responses given are essentially the same as those given at the meeting, although certain ones have been reiterated or elaborated upon for the sake of clarity. Part I of this section addresses those community concerns and comments that are non-technical in nature. Responses Responses to specific legal and technical questions are provided in Part II.

Part I - Summary and Response to Local Community Concerns

The following issues and concerns were expressed at the Interim Action Proposed Plan Public Meeting. The majority of expressed comments and concerns focused on the possible effects to the land and groundwater in the offsite area affected by the groundwater contamination.

Private Water Well and Surface and Water Sampling, Woodcreek Lake Area

(1) Several questions concerned what EPA's intentions were regarding the lake and surrounding area. Several others asked that EPA go ahead and sample all private water wells around the lake.

RESPONSE: Based on the concerns raised at the meeting, the South Carolina Department of Health and Environmental Control (SCDHEC) decided to sample an additional 4 private wells. Since EPA sampled four others, the result was that all eight of the full-time residents' wells were sampled. Results from EPA and SCDHEC, which were provided to Woodcreek Lake residents in October 1993, indicated that no contamination from the Townsend Saw Chain Company Site had reached any of the wells.

(2) EPA personnel were asked if any work would be done to address the potential for ecological damage in the offsite area, and whether the Agency had determined if such damage was causing, or could cause, a threat to the health of the residents.

RESPONSE: At the meeting, EPA staff explained that an upcoming Ecological Assessment, to be conducted by the PRP under EPA's oversight, will show whether or not the wildlife in the offsite area were being adversely impacted. The data available to date do not suggest serious or large-scale ecological damage, but this will be verified by the upcoming work.

(3) Two citizens asked if EPA would sample and analyze the lake water, as well as conduct the planned sampling of four private water wells.

RESPONSE: EPA will consider sampling and further work involving the lake, depending on the outcome of the planned Ecological Assessment. At the public meeting, the SCDHEC project manager for the Townsend Site referred to the results of two past samplings of the lake, once in December 1991 and the most recent from January 1993. Both results indicated that total chromium was not detected at 10 micrograms per liter (ug/l). These results do not indicate a cause for concern in Woodcreek Lake. The December 1991 results were previously presented to the public in EPA's Fact Sheet announcing the RI/FS, in April 1992.

Origin of the Contamination

(1) One citizen asked whether the processes which led to the groundwater problem were continuing at this time.

RESPONSE: The process which led to the groundwater contamination, specifically, improper disposal of wastewater, has been discontinued and no longer poses a threat. Groundwater contamination resulted from direct discharge to the ground surface, between 1966 and 1981, of wastewaters containing chromium and other substances. Since 1982, Homelite Textron has been pumping and treating groundwater to remove the contaminants, as well as using a chemical treatment process to remove contaminants from its process wastewater. The water, consisting of both process water and groundwater, is

treated at the plant prior to being reinfiltrated back to the groundwater via a sprayfield. The treated water meets the drinking water standards for chromium, and groundwater beneath the sprayfield is monitored by SCDHEC to insure that acceptable groundwater quality is maintained. These methods of wastewater treatment and disposal do not cause environmental harm.

Repository Information

(1) A Richland County Councilwoman asked that EPA make the materials that are available to the public at the repository, simpler and more easily understood. She indicated that, in her view, the length and scientific content of the reports would be intimidating to most people.

RESPONSE: EPA is making, agency-wide, a number of efforts to improve public participation in the Superfund process. Such efforts will be made for this site as well, and will include the following actions to promote understanding and involvement by the public. First, EPA will insure that each major report, beginning with the RI Report which has yet to be finalized, will have a summary section at the front that will get the main points of the document, including the conclusions, across to the general reader. Second, EPA staff will insure that enough reference material is at the repository to aid the general reader. All reports will also have an index to the acronyms used. Finally, EPA will hold availability sessions at key points, as progress on the FS and the Interim Remedial Action warrant. These will provide opportunities for Agency staff to explain specific issues, reports, analytical data, or other items which may be confusing.

Further Work at the Site

(1) A citizen asked if EPA intends to sample groundwater or wells on the other side (south side) of Interstate Highway 20.

RESPONSE: As part of Interim Remedial Action, under EPA oversight, the PRP's consultant will complete an expedited hydrogeologic study which will identify the boundaries of the contaminated groundwater. If the data from monitor wells suggests that the boundary is south of I-20, groundwater sampling will be done south of I-20 to define the boundary.

(2) A nearby resident asked when environmental work on this Site will be completely finished, and a "clean bill of health" can be expected.

RESPONSE: Based on experience at other sites, EPA believes that completely cleaning up the contaminated groundwater will take many years of pump-and-treat operations. A timeframe of approximately 30 years is often used, but until a groundwater system is operated for some time, it cannot be reliably predicted how long it will take to complete the cleanup.

EPA Notification Letters to Property Owners

(1) A citizen living near the Site asked about the meaning of an EPA letter he received concerning groundwater beneath his property. The letter, as he understood it, showed chromium present at more than 7 times the drinking water standard. Also, he asked whether he will get any sort of final report or notification of what EPA's determination is, about the groundwater.

RESPONSE: Two sets of letters were mailed out in August 1993, one concerning shallow groundwater samples collected via direct-push technology, and a second set concerning water well samples from a group of residences and businesses south of Interstate Highway 20. This question concerns a letter in the first set. EPA staff explained at the meeting that the data were preliminary in nature, and subject to error in that they may be skewed high, due to certain weaknesses in the methodology used. Nonetheless, the data does suggest that groundwater beneath this and other properties may be contaminated above acceptable levels. The hydrogeologic study, which is a part of the Interim Remedial Action, will determine the boundaries of the contaminated groundwater. EPA will insure that the results are made publicly available, and also that the affected property owners are notified directly by letter.

(2) A resident living near the Site asked about an EPA letter she recently received, which told her that Site-related contamination had not been detected in her water well. The wording of the letter caused some concern and an explanation was requested. She also asked if EPA would resample the wells which had been previously sampled.

RESPONSE: EPA staff at the meeting explained the letter in detail so that the meaning of the results was clarified. The sample results indicated that no contamination from the Site had reached her well. The language in the letter was intended to communicate that other contaminants besides those associated with the Townsend Site, were not analyzed for. Thus EPA cannot be sure that some problem unrelated to the Site, such as bacteria, nitrogen compounds from septic tanks, etc. is not affecting the well in question. EPA may take well samples again, if the upcoming work in the offsite area indicates the need. EPA will insure that these results are also made publicly available.

PRP Responsibility for Providing Drinking Water

(1) A Woodcreek Lake resident asked what responsibilities the Potentially Responsible Parties (PRPs) have as far as providing alternate supplies of drinking water, if the plant is shown to be affecting private water wells.

RESPONSE: EPA will insure that the use and consumption of groundwater contaminated at unsafe levels is prevented. EPA and the PRPs will coordinate closely to determine how the drinking water would be provided, in the event that private water wells are found to be impacted by contamination from the Site.

Groundwater Movement

(1) A citizen asked how long it takes the groundwater to move from the Site area, down to Woodcreek Lake.

RESPONSE: It is not known at this time what the velocity of the groundwater is, as it moves down in the direction of Spears Creek. This is an item that will be investigated during the upcoming hydrogeologic study. It was explained at the meeting that the rate of movement is very slow compared to surface water flow. Groundwater flow rates vary widely; based on other sites in the surrounding area, the rate is probably somewhere between 100 and 400 feet per year, or 1 foot or less per day.

Performance of Pump-and-Treat System in Preventing Offsite Migration

(1) A part-time resident on Woodcreek Lake asked how sure EPA is that the spread of the plume of contaminated groundwater can be contained, and the boundaries of it maintained.

RESPONSE: EPA's experience at other sites indicates that a pump-and-treat system, if designed correctly based on an accurate understanding of Site hydrogeology, can successfully capture all of the affected groundwater needing treatment, and prevent migration. The technologies for hydraulic capture of groundwater using extraction wells, and for treatment by a variety of processes, are both well proven at numerous sites in the United States and overseas.

Attachment A

Proposed Plan for Townsend Saw Chain Superfund Site

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

INTERIM ACTION PROPOSED PLAN FACT SHEET

TOWNSEND SAW CHAIN SUPERFUND SITE

Pontiac, Richland County, South Carolina August 1993

INTRODUCTION

The United States Environmental Protection Agency, Region IV (EPA) has prepared this Fact Sheet to propose an Interim Remedial Action to address offsite groundwater contamination at the Townsend Saw Chain Superfund Site (the Site) in Pontiac, Richland County, South Carolina. EPA is the lead Agency for remedial activities at the Site, and, in cooperation with the South Carolina Department of Health and Environmental Control (SCDHEC), is

currently investigating the Site. Words appearing in bold print are defined in the glossary which begins on page 10 of this publication.

The purpose of the Interim Action outlined in this Proposed Plan is to minimize or prevent the continued offsite movement of contaminated groundwater. To accomplish this, the Action includes the design, construction and operation of a groundwater pump-and-treat system which will capture the groundwater at the offsite periphery of the contaminated groundwater. The groundwater will then be pumped through a treatment system prior to discharge. Initiation of this Interim Action, prior to completion of the Remedial Investigation/Feasibility Study (RI/FS), will cause work to begin now on an expanded groundwater cleanup operation, which will supplement those groundwater cleanup operations currently underway.

THIS PROPOSED PLAN:

1. Presents a summary of Site background and the findings of the RI to date;
2. Describes EPA's initial evaluation of available alternatives for offsite groundwater cleanup, and provides a summary analysis explaining why EPA is proposing the Action; and
3. Solicits public review and comment on this course of action.

PUBLIC MEETING

To Discuss the Interim Action and the
Status of the Remedial Investigation/Feasibility Study for the
TOWNSEND SAW CHAIN SUPERFUND SITE
August 31, 1993 - 7:00 P.M.
PONTIAC ELEMENTARY SCHOOL
500 Spears Creek Church Road
Pontiac, South Carolina

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Since 1982, SCDHEC has continued to direct Textron to proceed with an investigation and cleanup program for groundwater. In 1982, a groundwater treatment system was installed, consisting of five extraction (pumping) wells, chemical treatment tanks, and a spray or irrigation field for disposal of the treated water. Groundwater is extracted, chemically treated to acceptable standards, and then discharged to the spray field. Performance of the system and conditions at the spray field are monitored by SCDHEC. In 1987, SCDHEC identified problems in the treatment system's design and performance. To address those deficiencies, a subsequent 1988 modification to the 1982 Court Order directed Homelite to further investigate and define the extent of groundwater contamination, and to investigate Site hydrogeology as necessary to modify the system's design. A report with design revisions was submitted to SCDHEC in 1990, and following SCDHEC review, again in December 1991. The redesign effort has been completed and operation of the expanded pump-and-treat system will begin in

February or March 1994.

Between 1985 and 1988, SCDHEC and EPA took the necessary steps to list the Site on the National Priorities List (NPL), which places it in the Superfund program. During this period, investigations by SCDHEC revealed above-background concentrations of lead, cadmium, arsenic, cyanide, nickel, and four VOCs in groundwater at the site. Chromium, lead, cadmium and arsenic were present above background levels in sediments within the waste pond area, and a stream water sample taken just across Spears Creek Church Road north of the site contained chromium and four VOCs. Based on these results, the Site was then ranked by EPA in 1987 using the Hazard Ranking System (HRS), which evaluates the potential for public exposure to site contamination. Because of the potential for migration of groundwater contaminants offsite, and the large number of people in the surrounding area served by water wells, the Site was assigned a high HRS score and was proposed for listing on the NPL in June 1988. The Site was finalized on the NPL in February 1990.

EPA and Homelite signed an agreement in October 1991 under which Homelite agreed to conduct a Remedial Investigation/Feasibility Study (RI/FS). Dictaphone Corporation was named as a Potentially Responsible Party (PRP) by EPA when the Agency notified both Homelite and Dictaphone that an RI/FS was required for the Site. Dictaphone has not participated in the RI/FS to date. As a PRP, Homelite may pursue legal action to force Dictaphone to share the cost for the RI/FS and subsequent remediation. Additionally, EPA retains the right to pursue legal action against Dictaphone.

An RI "kickoff" public meeting was held by EPA at Pontiac Elementary School on April 22, 1992. Field work began in early May 1992. The initial ("Phase I") work included a monitor well upgrade/abandonment program to insure the reliability of the onsite and offsite monitor wells, and an initial sampling of Site soils and the monitor wells. The preliminary results of these sampling activities were presented in the "Preliminary Site Characterization Summary," submitted by the PRP's contractor to EPA in September, 1992. This document is part of the Administrative Record for the Site, and is available for review by the public at the Information repository (see page 10).

Based on these initial results, Homelite proposed further investigation of site groundwater and soils. This effort was designated "Phase II" and began in October 1992. Combined Phase I and II activities have included the installation and addition of 15 new monitoring wells to the previous 38-well network. Sampling has included collection and laboratory analysis of 73 groundwater samples, 17 surface water (stream) samples, 19 stream sediment samples, 35 soil samples, 10 septic tank sludge samples, 6 septic tank wastewater samples, and 10 air samples. Additionally, between January and July 1993, three rounds of offsite shallow groundwater sampling were performed using direct-push technology (DPT). A total of 49 offsite groundwater samples were collected, 37 of them by DPT. After a delay during which access to surrounding properties was obtained, offsite groundwater sampling via DPT was continued during June and July 1993. After discussions with Homelite in late June 1993, EPA decided to move forward with an Interim Action at the Site.

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FIGURE 2 OFFSITE GROUNDWATER CONTAMINATION

The unnamed tributary across Spears Creek Church Road from the Site exhibits contamination from the Site. The tributary is recharged almost entirely by groundwater, and water and sediment samples from it show clear impact from chromium-contaminated groundwater.

SUMMARY OF SITE RISKS

At this time, the draft Baseline Risk Assessment is being revised by EPA's risk assessment contractor. However, the groundwater sampling results clearly indicate that chromium-contaminated groundwater is migrating offsite in the direction of private water wells, located to the southeast and east of the Site. As noted above, chromium levels in groundwater are many times above the drinking water standard. The main contaminant of concern is chromium, although several VOCs have been detected at levels above MCLs in offsite wells.

While the contamination may be limited to the shallow aquifer, nearby wells could still possibly be impacted at levels above the MCL, unless measures are taken to intercept and/or control the offsite movement of the contaminant plume. This future potential risk to human health will be reduced or eliminated by the proposed Interim Action.

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Construction and operation of the Interim System will immediately follow EPA's approval of the design. The Interim System will consist of between 6 and 8 wells, submersible or other appropriate pumps, pipes/lines, a treatment unit to remove or reduce chromium, and other appurtenances as necessary to complete the system. After the groundwater is treated, it will be discharged to either: 1) a local publicly-owned treatment works (POTW), 2) Spears Creek via an appropriate NPDES permit (National Pollution Discharge Elimination System), or 3) another, to-be-determined disposal option. As stated above, the discharge option to be used will be determined in the design phase. Three to five months will be needed to construct the Interim System.

Design and Construction Cost (includes Design Cost and Treatment System Equipment	\$1,610,000
Annual Operation and Maintenance (O&M) Costs:	280,050
Disposal Costs - Treated Groundwater	34,500
Total Costs	\$1,924,55

Time to Begin Pump-and-Treat Operations = 10 - 13 months

O&M costs after first year will depreciate at an estimated 7% per year. These preliminary costs estimates are based on the limited information available at present.

EVALUATION OF THE ALTERNATIVES

EPA uses nine criteria to evaluate the alternatives which could be selected. The first seven are used to evaluate the alternatives based on environmental protection, cost, and engineering feasibility issues. The preferred alternative is then further evaluated based on the final two criteria. To be selected by EPA, an alternative must meet the first two "threshold" criteria.

This evaluation is more limited in scope than would be the case if the Interim Action was to be the final remedy at this Site. As noted above, following completion of the FS, EPA will issue a Proposed Plan for a final remedial action (remedy) for the Site. The final remedy will reconsider the planning and design for the groundwater pump-and-treat system proposed in this Interim Action, and may propose system additions, modifications, or other actions, to accomplish remediation of all contaminated groundwater originating from this Site. This Interim Action will be consistent with the final remedy.

EPA's rationale for selecting this action is presented below, in relation to each of the nine criteria. The site-specific rationale is indicated by the " " symbol.

1. Overall Protection of Human Health and the Environment addresses the degree to which an alternative meets the requirement that it be protective of human health and the environment. This includes an assessment of how public health and environmental risks are properly eliminated, reduced or controlled through treatment, engineering controls, or controls placed on the property to restrict access and (future) development.

The No Action Alternative would not be protective of human health and the environment, and therefore is not considered further in the evaluation below. It is not protective because the potential threats to private water well users located east and southeast of the Site will not be reduced or eliminated.

The Interim Action Pump-and-Treat System will achieve protection of human health and the environment through interception or control of the offsite groundwater plume's movement, thereby

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Modifying Criteria: These two considerations indicate the acceptability of the alternative to the public, or local or State officials.

8. State Acceptance addresses whether, based on its review of the RI, FS,

and Proposed Plan, the State concurs with, opposes, or has no comments on the alternative proposed by EPA as the selected alternative (or "remedy")

The State of South Carolina concurs with this Interim Action.

9. Community Acceptance addresses whether the public agrees with EPA's selection of the alternative. Community acceptance of this Proposed Plan will be evaluated based on comments received during the upcoming public meeting and during the public comment period.

PUBLIC/COMMUNITY REVIEW AND COMMENT

EPA will hold a Public Meeting on Tuesday, August 31, 1993, to discuss the Interim Action. Officials from EPA and SCDHEC will present a summary of the RI/FS progress to date, the remedial alternatives considered for the present situation, and why EPA is proposing the Action. The public is encouraged to attend this meeting.

EPA is also conducting a 30-day public comment period, from Friday, August 20, 1993 to Monday, September 20, 1993, in order to receive public input and comments on the Interim Action Proposed Plan. Written comments on the RI/FS at this Site or other issues related to Site cleanup are welcomed and are an important part of the decision-making process. Please send all comments to:

Ralph O. Howard, Jr., Remedial Project Manager
U.S. EPA Region IV, North Superfund Remedial Branch
345 Courtland Street, NE
Atlanta, GA 30365
404/347-7791, or 1-800-435-9233

EPA will review and consider all comments received during the comment period and the public meeting before reaching a final decision on taking this Interim Action at the Townsend Saw Chain Site. The Agency's final decision will be issued in the Interim Action Record of Decision, a legal document which formally sets forth EPA's decision summary in selecting the Interim Action. A Responsiveness Summary, which contains all of the public comments received and EPA's responses to them, is part of the Record of Decision (ROD). An Interim ROD is expected to be completed for the Site in late September 1993.

For more information on community relations in the Superfund process or at this Site, please contact:

Cynthia Peurifoy, Community Relations Coordinator
U.S. EPA Region IV
North Superfund Remedial Branch
345 Courtland Street, NE
Atlanta, GA 30365
404/347-7791, or 1-800-435-9233

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Chromium - A lustrous, hard, steel-gray metallic element commonly found in the earth's crust. Chromium is used in the production of stainless steel and for hardening other metals. Chromium solutions are used in electrolytic plating operations to provide a hard, durable coating for metal parts.

Direct-Push Technology (DPT) - Refers generally to one of several methods of sampling groundwater. Direct-push methods involve the use of hydraulic force to push hollow steel rods down into the ground until the water table is encountered. Groundwater may then be sampled, or the rods pushed further to sample deeper portions of the aquifer or other aquifers. Advantages of direct-push sampling include: speed, the fact that no soil cuttings are produced, and that there is no disturbance to the ground surface at the sampling location.

Feasibility Study (FS) - See Remedial Investigation/Feasibility Study.

Groundwater - Water found beneath the earth's surface that fills pores between materials such as sand, soil, or gravel. In aquifers, groundwater occurs in sufficient quantities which can be used for drinking water, irrigation and other purposes.

Hazard Ranking System (HRS) - A scoring system used by EPA and the state to evaluate relative risks to public health and the environment from releases or threatened releases of hazardous substances. An HRS score is calculated based on actual or potential release of hazardous substances through the air, soils, surface water or groundwater. This score is a primary factor used to decide if a hazardous waste site should be placed on the National Priorities List.

Information Repository - A file containing current information, technical reports, and reference documents regarding a Superfund site. The information repository is usually located in a public building that is convenient for local residents -- such as a public school, city hall, or library.

Interim Remedial Action - A remedial action that is intended to address immediate potential threats which could become worse unless action is taken immediately. An interim action is not an emergency action; any situation that is an immediate threat to the public health and safety is addressed by EPA or the State as an "emergency response action." Such actions usually include removal of hazardous wastes and/or contaminated soil; thus they are referred to as "removals".

Maximum Contaminant Level (MCL) - The maximum permissible level of a contaminant in water that is consumed as drinking water. These levels have been determined by EPA to implement the Safe Drinking Water Act of 1974, as amended in 1986.

Milligrams per Liter (mg/l) - Metric system units commonly used to express low concentrations of contaminants, in terms of how much solid material, by weight, is dissolved in a given volume of water. One gram weighs about the same as a postage stamp. One liter is about 3 3/4 gallons.

Monitoring Wells - Specially constructed water wells installed at specific locations on or near hazardous waste sites. Groundwater samples for laboratory analysis, and water table measurements, are taken from such wells. Monitoring wells thus provide valuable data concerning the direction of groundwater flow and the types and amounts of contaminants present.

National Priorities List (NPL) - EPA's list of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial response using money from the Trust Fund. The list is based primarily on the score a site receives on the Hazard Ranking System

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Safe Drinking Water Act (SDWA) - Federal law passed in 1974 to ensure water supply systems serving the public would meet minimum standards for the protection of public health. The law was designed to achieve uniform safety and quality of drinking water in the United States by identifying contaminants and establishing maximum acceptable levels (see "MCL" above).

Superfund - The common name used for the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (see also "CERCLA" above), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986.

Volatile Organic Compound (VOC) - An organic (carbon-containing) compound that evaporates (volatilizes) readily at room temperature. Many common industrial contaminants at environmental sites, such as trichloroethylene, tetrachloroethylene, and 1,1-dichloroethylene, are VOCs.

REQUEST TO BE PLACED ON THE
TOWNSEND SAW CHAIN COMPANY SUPERFUND SITE MAILING LIST

If you would like your name and address placed on the mailing list for the Townsend Saw Chain Company Superfund Site, please complete this form and return to: Cynthia Peurifoy, Community Relations Coordinator, EPA-Region IV, North Superfund Remedial Branch, 345 Courtland Street, Atlanta, Georgia 30365, or call 1-800-435-9233.

NAME:

ADDRESS:

TELEPHONE:

AFFILIATION:

REGION IV

INTERIM ACTION PROPOSED PLAN
PUBLIC INFORMATION MEETING

for the

TOWNSEND SAW CHAIN
SUPERFUND SITE

Pontiac Elementary School
500 Spears Creek Church Road
Pontiac, South Carolina

Tuesday, August 31, 1993, 7:00 P.M.

AGENDA

Interim Action Proposed Plan
Public Information Meeting
Townsend Chain Saw Superfund Site
August 31, 1993

WELCOME & INTRODUCTIONS

SUPERFUND OVERVIEW

COMMUNITY RELATIONS

SITE HISTORY

PROPOSED INTERIM ACTION

WHAT HAPPENS NEXT?

QUESTIONS, ANSWERS AND COMMENTS

NOTES

Attachment B

Public Notice of Public Comment Period

<Figure>

Attachment C

Proposed Plan Public Meeting Sign In Sheets

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Attachment D

Official Transcript of the Proposed Plan Public Meeting

UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY

REGION IV

INTERIM ACTION PROPOSED PLAN
PUBLIC INFORMATION MEETING

for the

TOWNSEND SAW CHAIN SUPERFUND SITE

Pontiac Elementary School
500 Spears Creek Church Road
Pontiac, South Carolina

Tuesday, August 31, 1993
7:11 p.m. - 8:5 p.m

TOWNSEND SAW CHAIN SUPERFUND SITE

INTERIM ACTION PROPOSED PLAN
PUBLIC INFORMATION MEETING
TOWNSEND SAW CHAIN SUPERFUND SITE
AUGUST 31, 1993

WELCOME AND INTRODUCTIONS - Ralph Howard

Good evening. I'd like to welcome everyone to tonight's meeting. We appreciate your presence here. The agenda for tonight is on the screen behind me and, I apologize, I hope everyone can read, particularly the bottom, when we go through the items you see listed. There is a sign in sheet in the back and I hope everyone signed in.

Let me start by introducing some of the participants from EPA and the South Carolina DHEC staff who are here tonight. My name is Ralph Howard; I'm the Remedial Project Manager for the EPA on this site. The South Carolina section chief, my boss, Jan Rogers, is here to my left. Seated next to him is Seth Bruckner. Seth is the assigned attorney from the Office of Regional Counsel within EPA Region IV. On my right is Cynthia Peurifoy. Cynthia is the Community Relations Coordinator. She's assigned to our group, South Carolina, also.

Also here tonight is personnel from South Carolina DHEC. They have worked with us, in conjunction with us on the site. Mr. Keith Lindler is on the front row here. Also, Chuck Gorman is here. Butch Swygert is here this

evening, and also, Yanquing Mo, also on the front row, and Tom Knight is here.

We also have officials here from Homelite Textron, that are associated with the site, the PRP that's under agreement to perform the work at the site. Mr. Tom Griswold is here. Sloan Robinson is here. Let's see, Mandy Ferrer is here from the plant. And one other gentleman, who's name escapes me at the moment ...

ROBERT BRAYLEY: Robert Brayley

I can't say that.

ROBERT BRAYLEY: That's okay.

So, anyway, that's our personnel.

SUPERFUND OVERVIEW - Ralph Howard.

The main purpose of our meeting tonight is to talk about the Interim Action the EPA is proposing here at the Townsend Saw Chain site. The purpose of the meeting here tonight is community relations, and I'm going to ask Cynthia to say a little bit about community relations in just a moment

The highlight on this slide didn't come out as well as I would have liked, but I wanted to point out the steps of the Superfund process and how we got where we are. Many of you attended the meeting we had last year in April at the start of the Remedial Investigation.

When I say RI/FS, that's Remedial Investigation/Feasibility Study. I'm going to have to stay away from the acronyms here. That started last year in May, the field work started. We had our meeting in late April.

We are still in the Remedial Investigation phase of work here. But, in Superfund, there is the prerogative, the possibility of taking an Interim Action rather than the final cleanup action on a site, and that's what we're doing here tonight. We're proposing to step ahead of the process a little bit, reach a decision based on facts that are uncovered during the investigation. The facts that led us to this, we're going to talk about in just a moment and they concern groundwater.

We had the Potentially Responsible Party contractor prepare a document that serves as a Feasibility Study. It's a short, focused Feasibility Study, you could say. And, based on that, we then propose an action, take public comments on a proposed plan, which is what we're presenting to you tonight, and then we write a Record of Decision on that action, depending on public comment, depending on a number of other factors that we'll go into later, as to how we select the action.

In this case, it's an Interim Record, meaning that it's not the final action of this site. There will be

another Record of Decision later that will close down, if you will, the investigation phase of EPA's work here and move into one final, you could say, overall site cleanup. This Interim Action will be looked at at that time again to make sure that it's doing what it's supposed to and it's effective.

Most of you are familiar with the site. This is just a map to, if you are aware of where it's located - the intersection of I-20 and Spears Creek Church Road, just down the road from us by some five or six hundred feet.

I'd like to briefly run through the site history. But before I do that, I'm moving ahead of my agenda, I want to ask Cynthia to come up and say a few words about community relations, which is after all the point of our meeting tonight. Cynthia.

COMMUNITY RELATIONS - Cynthia Peurifoy

Thank you, Ralph. Good evening, everybody. I would like to welcome you also and thank you for coming out to our meeting, and to basically cover a few points about our community relations program. We are here tonight because we're in the middle of a public comment period on the Interim Action, which Ralph is going to be going through with you in just a little bit

I would like to point your attention to our site information repository, which is at the Richland County Library on Parklane Road. All the information that we've gathered thus far on the site as well as a lot of information on the Superfund process and our community relations plan, information on public involvement, it's all there for your review so please take some time when you can and go by and take a look at that information.

The public comment period ends September 30 ... 20, I'm sorry. If you have some comments that you don't get to us tonight, I have some postage paid envelopes in the back. Feel free to pick up one and mail it in to us. There is a provision for an extension for an additional 30 days, if you so desire. If you feel you need you more time to review the information or get in your comments, please let us know in time.

I want to mention a few things about our ongoing community relations activities. I'm sure some of you got our Fact Sheets in the mail or have talked with us over the period of time that we've been involved in the site. I'd like to encourage you to call us at any time. We have an 800 number that's on the Fact Sheets; they're also on our business cards in the back. I would also like to encourage you to give us your feedback, to let us know

if there's some additional information you'd like

for us to review or if you have any suggestions on things that you'd like for us to do, feel free.

When we start this meeting, I'd like to ask that if you have some comments or questions, to please stand up and identify yourself. If you represent a particular group, also identify that group. We do have a reporter here who's going to be trying to get everything we say, so if you see her make a motion that she's not picking up what you're saying, please clarify that or make sure that she understands what you're saying. Thanks a lot.

SITE HISTORY - Ralph Howard

Thanks Cynthia. I want to emphasize again, please make your name known to us so that we can have it recorded for purposes of documenting the public input into the decision.

I would like to briefly run through some history about the site. Most of you are maybe somewhat familiar with this. This site history really dates back to 1966. The owner at that time was Dictaphone Corporation. From 1972 forward, the owner was at that time Townsend Saw Chain. Later, it was bought by Textron Corporation - Sabre Textron and later Homelite Textron. Homelite Textron currently owns the facility.

I won't read all this to you. The highlights are

that the company did, in response to DHEC activities, install a pump-and-treat system for cleaning up groundwater in 1982. That system is currently in operation. DHEC and EPA worked together during the mid '80's to take the steps needed to list the site in the Superfund program, primarily because of the large number of people in the area that were served by private water wells.

The site was proposed for listing on the National Priorities List, which is a list of the nation's most serious abandoned ... not always abandoned, but hazardous waste sites. The listing was made final in 1990.

There have been phases of activity, numerous phases, by Homelite Textron concerning the site, under South Carolina DHEC oversight and at their direction, since 1982, culminating in ... well, still ongoing, but in 1988 ... I guess as you saw on the previous slide, 1987, there were deficiencies found with the extraction system that I mentioned is still pumping. There was a redesign effort and improvement effort that has recently completed ... was recently completed. And, as you see here, that was 1991, when the ... late 1991, the plans went in to DHEC. They've recently been approved, things have been worked out, and that system is set

to begin pumping early next year, I believe in March.

And then the last two items have to do with the Remedial Investigation. As I mentioned, we began the work in May of 1993, the fieldwork. The agreement was signed in August of 1991, work plan development and so forth, and the fieldwork began in 1992, and brings us to this point in 1993. We've had a two phase Remedial Investigation, of which we'll talk about a portion tonight. We'll talk mainly about groundwater tonight.

I want to use this slide to briefly set the stage. The figure you see is a diagram of the plant itself. It shows some of the study areas that have been looked at for the Remedial Investigation. The crosshatched areas at the top represent the former waste ponds or water ponds that is the origin of the groundwater problem on the site. In the period between 1966 and 1981, waste liquids were disposed of in that area by direct discharge to the ground, and that's the origin of the groundwater problem. But this map is just meant to give you an overview of where things are onsite.

The Remedial Investigation report is being prepared now. There's not too many significant things to talk about other than groundwater. We had air sampling done as part of the Remedial Investigation. At this point, the air sampling does not appear to be a problem or a threat. We also found two small areas of soil

contamination that will have to be dealt with in the Record of Decision, but those are not of particular note or concern. They're not a risk outside the plant area.

Before I leave this, I want to point out the ... this tributary, this unnamed tributary that is about 500 feet from the site, across Spears Creek Church Road. It's fed by a spring. Approximately where I have my pointer, sitting there, was at the time of the beginning of the RI, the known limit of the groundwater contamination in the uppermost unit; and by that I mean closest to the ground surface. This shallow groundwater is what I'm referring to and roughly in the area that I'm pointing ... you can't see the mark. It's not going to show. Approximately where my pointer is. This is just to set the stage.

The main finding of the Remedial Investigation thus far has been that the extent of groundwater contamination in the offsite direction, and by that I mean eastward from the facility, is greater than we previously believed, greater than the data would have indicated.

I want to point out several things about this figure. This figure is also in the Fact Sheet that many of you have, but I want to make sure that the items on here are clear in their meaning. The boundaries that you see indicated represent our best estimate at this point

of the extent of groundwater contamination. Everywhere that you see the little dark points and so forth on this diagram represents a sampling point, and I'm going to talk about the sampling points and the data in just a moment, but this is to give you an overall idea.

The facility is here, and you can see the different ponds and so forth. Woodcreek Lake is over here, and the various ponds in the area. This is the tributary I referred to a moment ago, and this is Spears Creek. There's also a scale on this figure to give you an idea. There's several things about this figure that I want to make clear.

All the sampling points, or almost all the sampling points that you see indicated here represent points where we collected a groundwater sample using what we refer to in the Fact Sheet as direct-push technology. Made simple, that represents a point where a special device pushes a rod down into the ground to reach the groundwater, and then you sample it at that point.

Now, these sampling points are all that we have at the current time, and that sampling method, the DPT - Direct Push Technology - sampling method was used because it's fast and it allows a lot of data to be gathered rapidly, and it's a good way to get a handle on a large area in a hurry. It is preliminary data, and by that I

mean that this data needs to be confirmed in the Interim Action, which I'm going to describe to you tonight what that action is. But I think I should point out that the data are valid but they do need to be confirmed by more sampling and they need to be confirmed by sampling from monitoring wells rather than direct-push technology sampling.

PROPOSED INTERIM ACTION - Ralph Howard

The Interim Action we are proposing tonight is intended to intercept the groundwater movement offsite to the east and to the southeast, on a figure you just saw. To do that, the Interim Action consists ... well, the purpose is stated here on this line

The components of our Interim Action are to conduct a short, very focused study in the area that we believe may be affected and determine those characteristics we need to do the next component, which I'll get to in a moment. But a short, focused study has to be a component of this action.

There are various issues ... the list of issues you see here will make a little more sense in a moment. But what we're proposing is in fact a pump-and-treat system that will, as I said, intercept or control migration of the groundwater offsite. And the issues that have got

to be settled based on that study that I'm talking about are those listed that you see here: the numbers and locations of the wells; where they should best be placed; where the groundwater contamination is precisely -meaning boundaries and meaning concentrations; and the type of treatment, whether it's only for the main contaminant that is associated with the site, chromium, or whether it's from something else in addition to that.

The second component is the Interim Action treatment system itself. This is a groundwater pump-and-treat system that would be similar, but probably larger, to the current system that's in operation. As I mentioned, the current system that's in operation is to be expanded. But this would be larger than that and out in front of that, and I'll come back to the figure in a moment, explain that.

The system, as you might expect, will require wells, pumps, pipelines and so forth, to pipe the water for treatment, control equipment and treatment equipment to actually do the treatment of groundwater, to treat it to acceptable standards for groundwater.

The cleanup or the Interim Action has to be consistent with the final action, that I mentioned will come later. There will be a Final Record of Decision for the site that will be looking at everything about the

site rather than ... all facets of the site rather than just groundwater. That at this point is expected next spring, but this is an Interim Action to get out ahead of that, to begin work on this system now, to get work started now. It's a proactive step to get us going on these issues which will have to be settled. And, as it says, it will allow the overall cleanup to begin sooner than it would otherwise, because the type of work we need to do is not Remedial Investigation/Feasibility Study type work. It's work that is based on the decision to go ahead and pump-and-treat.

Here's some more specific facts about the Interim Action. These are approximate time frames, but these are our objectives as to how to accomplish the Interim Action. The first part would be the focused study, find out what we need to know about how best to attack the problem out there, and also to verify precisely where the boundaries are and precisely where the levels of contamination are. This may result in verifying boundaries that are different than those that you saw on the map previously. We're not sure which way that's going to go; that's got to be determined.

And you see here an approximate overall time frame of ten to thirteen months, with three months for the study, four to five months for a design, for an expedited design, and three

to five to actually construct what the design calls for.

There are substantial costs associated with this that will be borne by Homelite Textron. These estimates of cost are very preliminary. They're based on some assumptions, the details of which are in the document I mentioned that is the short Feasibility Study, and that is available at the information repository that Cynthia mentioned. It's titled "Technical Memorandum on Interim Remedial Action," and that document is at the Northeast Richland Library.

Now that I have at least briefly gone over what it is we have in mind, I want to hit a couple of more points on this map to get some points across. As I mentioned, one of the tasks to be performed in the focused study is to make sure where the boundaries are, and, as I mentioned, at this point the data is preliminary. It needs to be verified from samples from monitoring wells as to precise levels. But at this time we think the levels will still be above the drinking water standard, which is why we are proceeding with the action rather than waiting.

As you may have noticed also on the Fact Sheet, the boundary that is shown on the other side of Spears Creek, we believe that to be a probable boundary. We believe that the contamination is not going beyond that point in

the area where Spears Creek bounds the area on the east. And the reason we say that is because we do have shallow groundwater samples on that side there that are below detection level. The other boundary, the boundary to the southeast that is near Interstate 20, we're less sure of that boundary.

There was a precautionary sampling done of water wells, private water wells on the south side of Interstate 20. Seven private wells were sampled by Aquaterra, the consultant for Homelite Textron, and those results were negative; meaning that there was no chromium or volatile organics detected, below detection limits in those samples. That was done this spring, and the results were mailed out recently.

Also, the other point I wanted to make, which I was trying to remember, was that as a precaution, EPA has decided to go ahead and sample four private residence wells that are near Woodcreek Lake. I really haven't emphasized, but I should, that the potential risk for water well users in the area or in the direction of plume movement, which would be towards Woodcreek lake and possibly down southward towards I-20, that's the main reason or overriding rationale for our proposed action, because there is a potential threat, or there could be, to water well users, and we want to take a proactive step

here to get out in front of that groundwater plume, and we want to do it the best way that will work, and that's the reason for the short study; the short study instead of just rushing out there right now.

Our knowledge of the entire offsite area that you see is quite limited at this time, and that's got to be taken care of. The EPA has elected to go ahead and sample four private residences, which I'll indicate ... it doesn't look like it's going to show. Two homes on the east side of Woodcreek Lake and two homes on the south site here, near I-20. Our rationale is that those are the nearest to where we think the plume may be, and we don't expect to find anything. It is precautionary but it needs to be done.

WHAT HAPPENS NEXT - Ralph Howard

The further work that is going to occur here involves the completion of the Remedial Investigation itself and the Feasibility Study. The Feasibility Study will look at what the best options are for cleanup not only of groundwater but of other things that were found at the site. I mentioned two areas of soil contamination that are pretty small in size involving any risk. They will be taken care of. There are other issues that need to be wrapped up. We expect to do that at the end of the

year. Next we will follow up with a post plan, similar to this one, at which point we will talk about the site as a whole, including groundwater, and that Record of Decision ... I'm sorry, that proposed plan will let you know that we're also going to look back at this Interim Action to see how far it's come and is it on course.

The Final Record of Decision will tie this all together, if you will, into what we can think of as one overall site remedy for groundwater and for any other contamination that's going to be taken care of; and we expect to do that next spring. March may be a little optimistic for the Record of Decision, but that's the objective.

QUESTIONS, ANSWERS AND COMMENTS

RALPH HOWARD: I expect there are a lot of questions. This was short and brief, but I hope we've at least given you an idea of what we have in mind, and we'd like to entertain questions at this time. And, as I mentioned, please let us know your name so we can have it recorded.

FRANK MANN: I'm Frank Mann, a property owner on Woodcreek Lake. You've been talking about contamination of shallow aquifers and contamination of tributaries near the creek. Are you planning to test the lake water at Woodcreek?

RALPH HOWARD: One thing I did not mention in talking about the

other issues in the Remedial Investigation was that the tributary itself is being evaluated for ecological reasons, mainly. The data we have from the RI would indicate that there may be some risk to the creatures that live in and along the tributary

We have done some sampling to date on the tributary, and the sampling that we have to this point would not lead us to sample the lake right away, based on what we're seeing. The reason I say that is because the lake ... for the lake to be impacted, the water that feeds the lake would have to show contamination.

So what we've done is, we've started up close to the plant, worked in the eastward direction, moving towards Woodcreek Lake. And, in doing that, what we're seeing in the way of chromium in the sediment is not of a nature or a degree that would lead us to say the lake is affected.

We've also ... South Carolina DHEC has taken periodic samples from the bridge down ... near your home, I believe, down over the creek, and the samples from the creek and from sediment in the creek are low or below detection limits. And that, when I say below detection limits, in this case the detection limit is 10 parts per billion, with the drinking water standard of 100. So we don't see the contamination in the water leading into the

creek ... leading into the lake, I'm sorry. Does that make sense?

FRANK MANN: Yes, sir.

WALTER TYLER: I'm Walter Tyler. We have some property on the south side of I-20 ... (inaudible) ... One sample was taken from 47 feet from ground service, and it was .670 milligrams per liter, which is seven times above the acceptable level.

RALPH HOWARD: It's above the drinking water standard, that's correct. This point needed to come up, and it should, and I want to make sure this is clear; I would like to make it clear.

The sampling method we do, we use the direct-push that I mentioned earlier, recover samples from the groundwater in such a way that the sample is oftentimes full of fine material like clay, like mud. Because of the way the sample is recovered, when that sample is analyzed there is potential, you know, sometimes for the readings to be higher than what is actually present. At this time, we don't know whether the sample, for example, from your property is necessarily a whole lot higher than what's there, or it could be a whole lot higher than what is there.

The way to answer that question is already underway. The way to answer the question is to get a better sample,

and to do that you must take a sample from a properly installed monitor well that actually represents for you what the aquifer is like. So we haven't waited to do that. Those wells have actually been installed.

There are ten new wells in the large area that I showed, that was defined by that boundary. Those wells are in varying depths into the ground. That sample will be scheduled next week. I'm not real sure how soon we'll have those in our hands, but that data could be two or three months coming. And the reason for that is because those samples are absolutely crucial because they will answer your question. They will tell us whether or not the level is real or whether we're seeing exaggerated results in these direct-push samples.

I'm not sure I remember exactly where the Tyler Construction property is, but there is a well on the other side of I-20 that is one of the ones to be sampled. So the property owners to the south of I-20 are, because of that location and because we have a well near there, we'll get a good answer of that and those results are going to be made public. Those will be publicly available.

BILL THOMPSON: I'm Bill Thompson. Just a superfluous question. What is the velocity from here to Woodcreek lake of the groundwater? How long does it take for groundwater from

here to get to Woodcreek lake? It's a mile and a half.

RALPH HOWARD: At this point, we can't say with certainty what that velocity is. In fact, you know, to be quite honest, there are a number of things we've got to become experts on, as it were, about the groundwater just in that area. And it makes sense in a way because up until now all the site work has been directed at areas close to the site. And, for that reason, when you go out into a new area, which this area is, the hydrogeology, the flow rates, the water depths and so forth can be different; maybe not a lot different but enough to affect how fast it flows and so forth. If what we have out there is real, it may be that it's down there. But that doesn't tell us how fast. No real good answer for that one.

LEONE CASTLES: I'm Leone Castles, and we've got a house at Woodcreek. It looks like we're going to be one of the ones checked.

RALPH HOWARD: Well, I think you're next to Mr. Combs or Ms. Dart.

LEONE CASTLES: Yes, I am next to Peggy Dart.

RALPH HOWARD: I think we're going to get Mr. Combs' well and Peggy Dart's well.

LEONE CASTLES: Okay. When are you thinking that this work will be completed? You know, you're talking to people here and we are all concerned, and more and more. And this

has been going on 25 years and it is something now that is really raising attention. What is your due date for finishing and giving us a clean bill of health? I mean, you know, we don't understand all this.

RALPH HOWARD: I understand, yes, ma'am. That's a very good question. To answer it honestly and truthfully, groundwater cleanup is going to require some years here because, to clean it up, as you can tell from listening to us, it's go to be pumped out of the ground and treated. That means tha we're stuck with water well technology, essentially, to remove the groundwater.

So if you ... even if you take a lot of wells and put them in the area that you want to clean up and pump all the water out, there's limitations to how much water you could treat and ... and I'm not trying to dodge your question. I'm trying to explain why it takes so long.

How much to treat, to which degree, do you want it very clean or just barely clean enough - issues like that mean that a lot of money will be spent and a lot of time will pass to get the groundwater out and treat it. In this case, it's hard to say specifically. Groundwater cleanup in general ...

LEON CASTLES: What's your guess on time?

RALPH HOWARD: ... tends to go over years. At most Superfund sites, we use an estimate like 30 years. It could be

shorter in years, but there's no way to say yet if it's going to be shorter ...

LEON CASTLES: Well now, there's one other ... (Inaudible) ...

JAN ROGERS: Just to avoid the worst possible twist you could put on it, final cleanup is what Ralph is talking about. As far as looking at the total investigation, he made you an optimistic perspective of in another six months to a year we could have an RI that deals with the overall problem.

Going to the other gentleman's question about sediment, we know there's a potential sediment problem. This groundwater migrates down and surfaces to those drainage systems to some extent, and can be contributing to the lake. We don't think it's doing it via the water path. We think it's doing it via transporting sediments. But then there are factors in the food chain related to the drainage system and possibly the head waters of the lake and any number of other issues.

The reason we're going forward with this part as an Interim Action is, we know there's a groundwater plume there. We always talk in terms of groundwater movement. Nobody knows until they do some sophisticated studies of an immediate area to determine just how fast groundwater moves. But it's not fast in relative terms. It's not like it goes from the plant down to the lake in two

weeks. It took a lot of years to get there.

Initially there were some estimates on what groundwater was expected to be ... groundwater movement would be expected to be in that area. The investigation started out from the plant, and we found out it was much farther down to some level of detectable contamination than we would have thought. The plume, we would have thought would have been tighter packed back towards the plant itself

There really aren't a whole lot of options dealing with groundwater contamination. You put in water well technology, might call in sophisticated technology, until we come up with something better, especially for these kinds of contaminants, and you would extract the solubilized portion that is moving with the groundwater. That way you can at least control it. You also would go back and would at least explore, is there a way to go back into this whole entire area that's been impacted and clean the entire aquifer with additional wells.

None of that will take place quickly as far as the cleanup. The implementation could take place in a hurry, in a relatively short time compared to 30 years. But the reality of it is, the pump-and-treat will go on for a period of time.

What we're looking at is, what are you the public

exposed to? You're either directly exposed to it or you're consuming it. We're concerned down towards the lake and other areas across the interstate as far as the consumption.

Can we get interceptor wells in there and impact the flow of this material before it gets to your wells and keep those wells from ever becoming contaminated? We feel like at least if we do this action more quickly, we have a chance of impacting that particular movement.

You're still going to have deal with the 30 years or whatever it takes to clean up the aquifer. There's a lot of technology that needs to be developed yet in order to totally restore the aquifer, but nobody's drinking that aquifer. We know where it's contaminated and we'll make sure that nobody does drink it.

The other aspect is, if your well becomes contaminated there are alternatives, in that you can go to the public water supply and other ways of dealing with a well that's become contaminated. We don't want to get into what if scenarios, but we need to take away any exposure that we can identify that could be adverse to your health.

So far, we've found the plume much further out than we thought it would

be. We want to refine the leading edge of the parts of the plume, but we also want to start

some activities on proactively going out and trying to intercept and keep it from going any further with water well technology.

That water, when it's recovered, has to be treated and discharged. There aren't a whole lot of options out there and, the other reason we wanted to start this early was, one of those options includes the possibility of treatment or discharge after treatment. And there's no line that exists for that right now; that will take some time, even if we could pump the water tomorrow and treat it.

So there's some other things that will have to fall into place and be considered during the design phase. But we want to get everybody on even ground as far as where we're going.

If we put out an Interim Record of Decision, we have made the decision that we need to proactively impact this groundwater plume, which means we're going to have to pump it up and we're also going to have to look at all of the alternatives for discharge that we'll deal with. And we feel like working with the company, because they've been very cooperative to date, we will deal with exploring those options and what becomes the most feasible option for the ultimate discharge of the water after it's recovered and treated and has to be disposed

of.

LEON CASTLES: Is there any responsibility from the companies involved to help secure city water, the lines and so forth to go into this area that is contaminated?

RALPH HOWARD: Basically, we don't know what kind of alternatives we're going to be looking at in terms of whether or not those wells are contaminated. Liability-wise, the company has been very cooperative and they will be willing to implement any sort of alternatives that we deem are necessary to prevent the public, you, from drinking contaminated water.

SETH BRUCKNER: Historically, if we show an adverse impact to somebody's well, we certainly have to evaluate does it create a health threat. If it creates a health threat, there are different measures for dealing with that. Some of it's due to toxicology, but it's very conservative estimates that are going to be ... if we feel there's a health threat, and there probably could be, we'll look at it from a Superfund perspective of providing alternate water supply.

It's just an option as to whether the PRP wants to deal with that or not, and I'm not suggesting it will go either way. If it doesn't occur by

parties that are participating with it, we will pursue it on our own. On an abandoned site where we have no parties, we would

pursue all this work plus any money dealing with the issues, and then deal with the recovery of the money. In this case, we have a very active PRP who's been very cooperative in working all along with us. And I don't want to get into speculation of what if's, but I think it's very easily dealt with should it become a problem.

ROBERT SESSIONS: I hope you can hear me; I'm hoarse.

RALPH HOWARD: Can you tell me your name?

ROBERT SESSIONS: My name is Robert Sessions.

RALPH HOWARD: Robert ...

ROBERT SESSIONS: Sessions.

RALPH HOWARD: Sessions?

ROBERT SESSIONS: Right. I'm a property owner adjacent to the school.

RALPH HOWARD: Right.

ROBERT SESSIONS: My question is about that tributary down there being contaminated. What effect does that have on the animals?

RALPH HOWARD: Now, which tributary ...

ROBERT SESSIONS: Directly in front of the school, right across the street. I want to know what effect that will have on the animals and what effect would the animals then have on human consumption, because we do hunt and fish and so does our children?

RALPH HOWARD: Right. As far as the fish, at this time we don't

think fish are a concern, and I'll explain why. We have water samples from the stream, from the little tributary, and we have those at about, I think it's seven locations, moving downward to the ... with the most farthest downstream closest to Spears Creek being right at Spears Creek. So we've got seven scattered on that tributary and there is contamination in the stream water at levels that are above a drinking water standard, which, you know, is for humans.

As to whether that level is above a level that would hurt animals and creatures and so forth is really not clear at this time, and that's because we have guidance that, where if it's a certain level, it is to trigger our

attention to look into it.

Now, if you just want to say did it trigger anybody's attention, it does but it's not what we consider a high level. It's just a level ... if you're talking about levels, it could be like between 100 and 160 parts per billion; the drinking standard being 100. We have samples of the water, as I mentioned, all the way down to Spears Creek, and the ones near Spears Creek, the one at Spears Creek in fact, is below the drinking water standard as far as people are concerned.

But the better answer is, that has to be looked into and that's one of the things we're doing in the

Feasibility Study. What we're doing, the company is going to do, is an ecological assessment; and what that involves, in short form, is a taking of stream water.

They take stream sediment and they take a group of animals, probably fish, maybe a plant and maybe an invertebrate, like a worm or a small animal, and they will expose the animals to the water and the sediment.

They're looking for toxicity, they're looking to see if there is an effect. And at this point, there's just no way to know whether there is an effect. We have to find that out and we designed this eco assessment, ecological assessment with the one objective of giving us a thumbs up or a thumbs down - either there is toxicity or there is not. But, at this point, there's just no way to speculate. Every stream is different, the hardness of the water, the mineral content of the water, the ... and other physical things about the stream water will control that and the sediment will control that also. So we just don't know yet whether there is.

But the reason that we're not concerned ... obviously, we're concerned. The reason we don't think the lake is being impacted yet is because we don't see the chromium reaching Woodcreek Lake through the stream water. And if it was in the stream water in a sizeable quantity, that would tell us we've got to go look at that

because there's a way to get it into the lake. But without seeing a way into the lake, we don't have any grounds to think that it's in the lake or even accumulated in the lake.

Does that make sense? So that's why we haven't proposed more on the lake itself as yet, but it's a ... you know, it's something that could happen, depending on what we find.

ROBERT SESSIONS: My concern is the inhabitants of the lake, be it deer, rabbit, squirrel, coon. People hunt in those areas and if we consume these animals, is there a threat to humans?

JAN ROGERS: That's what the eco study is going to prove out. But I guess what Ralph's trying to say is, we've seen a little impact on the sediment of the drainage system. It's not extremely high levels, but we now have to go back and assure that it's not entering the food chain and working its way up or creating its own toxic effect.

The other thing, and I don't off the top of my head remember chromium completely on the toxicological perspective, but I don't believe it's material bio-accumulates. Organics, a lot of organic pollution tends to go into the body, be stored in the fatty tissue of the body and tend to accumulate. Chromium and the other metals tend to have either direct effects or be passed

through the body, if I'm remembering right. I don't think it tends to accumulate a lot, and that's a concern.

We do have a concern on the small aquatic organisms. It's conceivable they could pick up some from the sediments and then work its way up the food chain. But it think it's more a concern over immediate toxicity and impact on the ecosystem than it would be accumulation in the bio ... bio-accumulation in the food chain, working its way up. The concentrations we're looking at, I highly doubt that you would see anything in squirrels, rabbits, those sorts of things, of any concern.

JIM CANTEY: I'm Jim Cantey. My family owns some property on the far side of the lake from the plant on Woodcreek Lake, and I'm also the president this year of the homeowners' association. I would like to thank the EPA for being involved in this thing.

As Ms. Castles said, it's been going on for some time now. All the people here, I think I speak for all of them, are concerned about the safety factors involved - what's going to happen to our drinking water and, as Mr. Sessions said, what's going to happen to the animals, the fish we eat, our children swimming in the lake, and this kind of thing.

It seems to me the practical thing to do, in looking at the map there, not only Woodcreek Lake is affected but

there are also other lakes and other streams there, that perhaps in the interest of calming us, the public, down somewhat is if you could take some samples directly from the lake, perhaps take some fish samples.

Why not check more than just four wells? You already have them in place there. I don't know what the cost of drilling a sample well is. I don't know what the cost of a push type well is, but I would think it would be a lot more than just taking a sample, and I know I'm oversimplifying the fact.

I know fish samples are taken from lakes frequently. I know water samples are taken from lakes and from private wells and this kind of thing. It seems to me like a practical thing to do and to assimilate this information would be just to take more than just a few samples.

I realize that you have sediment problems and many other type problems involved in it as well. But at the same point, I think that if you told me my well probably is safe and if you told me we've checked your well and it's safe to drink from it, I'd feel a lot more comfortable with the latter. Or if you told me it's all right for my children to swim in the lake or it's all right for me to fish out of the lake, whatever, it would make me feel a lot better and would make a lot of us feel

a lot better if you would do that.

Perhaps that is an oversimplification of it, but I think that that's something you ought to ... from a cost standpoint, I don't think it would be prohibitive and, also, it would make us feel a lot better.

RALPH HOWARD: The reason we haven't proposed sampling more wells than the ones we've proposed is because we ... there's several reasons. For one thing, you do have to move outward from a site, go to the areas that are closest to where you think the problem may be. And the geology of the area is such and the nature of the aquifer is such, with sand being a primary component is such that we don't see a possibility for contamination to go around the wells that we're going to sample and show up somewhere else. That's why we haven't proposed sampling, you know, just to all the wells.

There is the issue of, we have no cause to think that there's anything else out there. But if you bring in a whole lot of samples at one time, you bring in the possibility of other things that are completely unrelated to this Superfund site.

Even in the area that's offsite where the tributary is, that you saw outlined on a diagram, there are scattered, small places out there with trash ponds. And I should have noted this earlier, but there is the

possibility that some of those are contributing, or could be, to the groundwater problem that we see out there. There is the issue of bringing in those things.

I guess the best reason is that it really is precautionary at this point. We don't really know with certainty, you could say, that the extent that you saw on my diagram reaches as far as it does. We have got wells in place now that will answer that question, of whether or not it is that far out.

That knowledge could change things. It could lead us to go back to the

area of the owners of Woodcreek Lake and sample it again; that or something untoward in the samples. But geologically it just ... we don't see a way to miss it in those private water wells.

JIM CANTEY: What about the fish in there?

RALPH HOWARD: The possibility of a sample from the lake might be a good idea. That's been done periodically at least in the past and we would consider that.

Yes?

YANQUING MO: I'd like to ... (inaudible) ...

RALPH HOWARD: You've got to speak up, we can't hear you.

YANQUING MO: DHEC has taken some samples from the lake. The latest sample was taken in January of '93, and on the previous samples and the '93 sample showed no contamination of the lake. So a sampling of surface

water in the lake ... (inaudible) ... chromium, there's been no detection in it.

So right now we have some information that shows that the lake hasn't been impacted yet. And I think in the ecological assessment, Aquaterra has some proposal to take some sediment and surface water from the creek to see if there are any impact there and what is the impact to the food chain or other life forms there. So those will provide information to what kind of ecological impact has been happening by the contamination on the site. So I hope this will help.

JIM CANTEY: Thank you.

JAN ROGERS: From a swimming perspective, we're not seeing it in any significant concentration in the water. It shouldn't be piling up in the lake and it's not a material that's readily absorbed through the skin. So that's, you know, that's very remote as a concern for an exposure route.

I think the biggest concern right now is, the stream is a relatively low flow, especially the upper branch. Spears Creek actually has a pretty decent flow and probably wouldn't expect to be able to find much chromium in that.

Our theory is that chromium has slowly migrated through the groundwater and, at various points, it

outcrops into that drainage system. But realizing groundwater moves very slowly compared to any flowing stream, there's a tremendous dilution effect

there. We want to go ahead and start these measures to contain it. And, in theory, there is some potential for impact of what we call the ecosystem for sediments in the various components of that drainage system.

More importantly, we want to intercept it and make sure it doesn't impact somebody's well at the leading edge for right now, and that's what the Interim Action is about. The ecosystem study will go forward and deal with just what is the impact along that drainage system. We can detect it, but we can detect extremely low levels.

Then the question becomes, how do you interpret the amount that we've detected and to what degree is it going to cause a problem? Well, the amounts of concentrations you're talking about, it's very likely that you'll have a minimal impact right now on the drainage system. You may have accumulated some sediments in the lake, but even that's kind of questionable because you're ... you're not seeing a lot of ... you do have natural filtration through there. You're getting some sedimentation moving down there, but it also gets knocked down before it gets to the lake.

The ecosystem hopefully will tie up some of those

issues. And again, it's material that generally ... chromium is kind of a strange beast in it's toxicological issues. But, you know, we want to do this Interim Action while we complete the studies to deal with those other issues.

From the well perspective, that gets into a lot of other issues. When we go out and sample wells, we're running analyses on contaminants related to our site. We're probably not going to run any analysis related to bacteria, and I assume you've got septic tanks out there. Health departments generally deal with that on a local level and they try to make sure that septic tanks are far enough away from the well that they don't short circuit. But in my emergency response days, I found a lot of them that didn't. And usually there was a big train derailment that was accused of causing the shutdown of the well, but it was shut down by the local health department because of bacteria. It just happened to be unfortunate timing that they looked at the well while we were looking at the derailment and the two, to the public coincided, therefore they were related.

We tend to look at the leading edge. We've got several homes there that we don't really think should be impacted, but we want to sample those wells to see if there's any direct exposure of them while we deal with

the rest of this delineation of the aquifer.

Most of the data we're gathering is technical data related to draw down tests and other things to see where you place recovery wells, how far do they have to be spaced, to impact the leading edge. We've got to be able to

draw any contaminated water coming down and draining into those wells before it passes through that area, and that requires some technical issues on better defining the nature of the soils and the water yields and those sorts of things.

WALTER ROBERTS: I'm Walter Roberts. I've got a house down at ...

RALPH HOWARD: Could you say your name one more time?

WALTER ROBERTS: Roberts.

RALPH HOWARD: Roberts?

WALTER ROBERTS: Walter Roberts. I hope this doesn't sound like it's addictive speculation, and it calls for speculation on your part. But I don't think anything had been done between 1966 and 1981, when this could have been done but was not done. But since 1981, do you think that the efforts that have been made have contributed to the continuing contamination or do you think they have been adequately keeping the continuing contamination from occurring?

RALPH HOWARD: Well, the first thing that should be kept in

mind, and it's very important, is that the contamination is, as far as its origin is pre-1982. By that I mean that at that point the company was looked into by DHEC. They were fined, I think. They did put in the extraction system to pump-and-treat groundwater. There has been a lot of groundwater removed, treated and discharged back to the aquifer.

As you may be aware, they have a spray field where water infiltrates back down. And it's important to keep in mind that the treated water that goes through there is below the drinking water standard. It's at the South Carolina drinking water standard, which is 50 parts per billion; ours is 100 parts per billion. But there have been efforts, as you say, since 1982 to deal with the problem.

You know, when you say was it sufficient or not, to my knowledge, to my belief, it was sufficient as we've progressed in knowledge about where the contamination was. I didn't highlight this when I put my diagram up that showed the facility outline, and I tried to draw where the groundwater plume was known to exist when we started the Remedial Investigation, but that is an interesting case in point. The company had about ... at the time of the RI, some 50 wells on the site and there are still 35 or so wells on the site; some of the older

wells were abandoned.

But the point I'm leading to is that the well network defined where the

plume was, or so we all believed, and there's no easy answer as to why the extent appears to be beyond what we had as a closed off, you could say, monitor well network. Typically ... so anyway, what I was leading to is, the effort that's been put against the problem has been proportional to the size of the problem and so forth. The deficiencies that were found by DHEC in 1987 and early '88, when they got to working again, were to the best of everybody's knowledge going to correct the deficiency.

WALTER ROBERTS: You mean there was a state of the art sort of thing at that time?

RALPH HOWARD: There was some state of the art, and there is some imprecision in pumping-and-treating the groundwater, and there's no way to get around that. You can be conservative in your assumptions, as we are on the regulatory side. But even so, it is possible for the geology to fool you, as it were, and your data will tell you, your information will tell you that you're getting it all but, in fact, you're not.

I wouldn't want to characterize the whole thing as just a complete ... we were completely blind-sided, or the company was completely blind-sided. But I think it

is fair to say that in large measure all the work to that point would have led to the conclusion we had, which was that we had the boundary of it. And I think it should be kept in mind also that when you're pumping the water out from a certain area, that is an area that you've influenced and caused to fall into, you could think of, fall into your well, your pumping well. And what that does is, that puts a stop point in the ground. It puts a hydraulic barrier, is what we refer to it as.

So there was ... there's some imprecision and some questions about where the extent of that barrier was, but it's ... you know, I think it's fair to say that it's not as if the effort was known to be short.

WALTER ROBERTS: To the best of your knowledge now, what is in place then is adequate to prevent further contamination. Is that what you're saying?

RALPH HOWARD: No, definitely not.

JAN ROGERS: No. What we're proposing should be. A couple of other variable you have to take into consideration. Superfund was passed in 1980. Nobody bothered to have any ... or Congress didn't have any legislation dealing with multimedia issues up until that point. We had air laws, we had surface water laws. We had virtually no groundwater laws. The legislation at the federal level started with Superfund, which said hazardous waste lik

is out here, we have to look at both surface soils, surface waters, groundwater, and subsurface soils as an entirety as far as dealing with the

problem. That only started with legislation. The program started slowly.

The states typically are behind us on their legislation, following would be the federal legislation to delegate and implement at the state level. So there's been a bit of legislation growth from the early '80's. A lot of authority hasn't existed to do much of anything until well into the '80's.

The other variable is the technology. You didn't have any targets across the street. You had an estimation that there was really slow movement, somewhat identified and contained in that immediate area. There's nobody using the water over there until you go way down stream, and most people don't expect contamination across other streams. They tend to be, especially on topographic relief areas, a nice outcrop of groundwater movement.

And this technology that we're using hasn't really been available to us except for maybe the last two years. It's a way to go out and cheaply poke holes and take samples of groundwater as a snapshot only. And you pull that rod back out and you can't go back and get another sample. You've got your sample and that's it.

It's a quick investigative tool that ... the nature of this business has been evolving for the last, really 13, 14 years, and it's one of those tools that allows us to take quicker samples and take quicker looks to try to find the leading edge of something and get the outer bounds more really. But we always go back and put in permanent wells. Those can be duplicated in their sampling. The kinds of levels we're talking about, you can mess them up real easily, just like taking the sample wrong, cross-contaminating. And typically, if we took a sample of your well tomorrow and it showed contamination, we'd come back and take another sample because we want to make sure we're seeing a consistent level that's not been impacted from any other outside source, including the sampling technique, the sampling jar or anything else. If we can show two samples in somebody's well that are of a concern level, we start moving forward.

But we're talking very, very small numbers here, and the technology to do field investigations has been evolving. You know, one person mentioned 25 years. The fact of the matter is, we couldn't have done anything about this for those first 15 years because there wasn't any law out there that gave us any authority to ...

WALTER ROBERTS: I don't mean to interrupt you, but I think you

missed the point of my question. Is contamination at the plant continuing?

JAN ROGERS: No, and the system that's in place via the state order was oriented toward going at what I would call source control. The plant had

those ponds. There was percolation into the ground from those ponds, creating probably some fairly high levels of contamination right below, in the groundwater of those ponds.

The system the state has put in, has been working on putting in and enhancing is oriented toward that gross contamination. The stuff down in the rest of this plume is at a much lower concentration, but it's still a concentration of concern compared to normal drinking water standards that exist. And what we want to do is use this action to supplement what the state action had already been working on back at the plant, to get a handle on this leading edge, lower concentration. But the source has been being addressed by the state since 1982, and really on to '88 with the expanded version of that, where they went across the street.

So there's really two different components going on. The state's been doing some actions and we actually didn't do anything on the site until it was granted as an NPL, which it was not until later on. And these actions are oriented toward downgrading contamination,

trying to get a handle on it. You know, there were people consuming groundwater downgradient and there's a discharge going into the lake and the tributary that could be adversely impacted by just not doing anything.

RALPH HOWARD: I also wanted to point out that I did mention, I remember when I was going through the history of the site, I mentioned about the pump-and-treat system that Jan was referring to. It's referred to as the enhanced system by the company in the documents that you may see at the repository. That system consists of, I guess it's two additional wells on the other side of Spears Creek, and that's the ones that will pick up pumping in probably March of next year, and those are close to the site. And, for that reason, like he was saying, they will catch groundwater that is closer to the site. And the groundwater that is closest to the site is the most contaminated, based on the data from past studies.

But there's not contamination still going on at the site. It's not as if things are still being putting onto the ground or in the water or air or anything else that are continuing to cause a problem. That is not the case.

WALTER ROBERTS: You're satisfied about that?

RALPH HOWARD: Yes, sir, because their waste water practices have been substantially changed, radically since the time that the rinse waste waters were essentially going out

of the back of the facility. But yes, we're ...

TOM GRISWOLD: Ralph, could we further address that?

RALPH HOWARD: We can ...

TOM GRISWOLD: We'd be glad to speak on that issue.

RALPH HOWARD: About the change in the ...

TOM GRISWOLD: No, in answer to the question that was asked just a minute ago as to whether the plant is continuing to contribute to the problem. The answer is emphatically, no. There is a state of the art treatment system for treatment of the industrial waste water, which the plant does naturally have as part of its production process. It is a permitted facility that is a permit that is granted to us by the state of South Carolina, a permit which we meet the requirements of. So in answer to your question, no.

JAN ROGERS: That's what Ralph was trying to say, is they've changed their whole waste water treatment scheme, where they no longer discharge untreated waste into the ponds. They were the original source. There's no longer that kind of ongoing activity, and what we're trying to do is deal with the results of those past practices.

RALPH HOWARD: More questions? Yes, ma'am.

VERA GLADDEN: I'm Vera Gladden and I live on Spears Creek Church Lane, right off of Spears Creek Road, about a half a mile from Townsend Saw Chain. My well water has been

tested and I've received a letter from you, and I'd like an explanation.

RALPH HOWARD: Sure.

VERA GLADDEN: It says that when the water sample was tested, it said that the analyses indicate that no elevated or no unusual levels of either type of contaminant. Now, would you please give me precisely the answer to that?

RALPH HOWARD: I thought I took the word unusual out. It was meant to be elevated, and by that ... and I'm glad you asked this question. If we give you an answer and we say, well, everything in your sample was low, that's ... you cannot say that, because normal drinking water, as long as it's local quality water, it has a variety of mineral content. So we can't go back to even say, well, everything was low except the iron or the magnesium. Well, those things may be harmless, but you don't want to hear that they're high. But, in fact, by comparisons to some other thing, they will be.

What I meant there was that, by elevated or unusual I mean of any concern as regard to health. They're below the drinking water standards and they're not elevated, so there's nothing there to draw our interest or say you have a possible contamination problem. The first thing we check them against is the drinking water standard.

VERA GLADDEN: The essence of what you're saying, is it safe for

me to drink my water?

RALPH HOWARD: It is. Yes, ma'am, it is

JAN ROGERS: Let me explain it like this. You have that in the letter, and I told him to take it out because we didn't test your well for bacteria. Your well might have other things that are really unrelated to what we're investigating in it ...

VERA GLADDEN: We're not talking about bacteria. We're talking about contamination ...

JAN ROGERS: That's right.

VERA GLADDEN ... from Townsend Saw Chain.

JAN ROGERS: Well, bacteria is a contamination but, I mean ...

VERA GLADDEN: That's true.

JAN ROGERS: Yeah, that's why I told him, state it as such that we see no impact from the contamination problem we're studying on your well. That's really all we're doing in this study. We're not going out and telling everybody they don't have a bacteria problem or some other unrelated issue to drinking water standards that we really don't, we're not authorized to look at. There are other programs that deal with those issues. And I said, sure as anything, we'll get to the public meeting, she'll stand up and say the county came by, tested the water and said it's unsafe to drink because of bacteria, and she'll have this letter saying we said it was safe to drink.

So, you know, we tried to context that letter ...

VERA GLADDEN: I just asked for an answer.

JAN ROGERS: Yeah.

VERA GLADDEN: The letter was written and I'd just like ...

JAN ROGERS: That's all we're saying, it is below any concern used on public water supplies for chromium. It's below the safe drinking water standard, and those are using very conservative numbers that are developed for lifetime exposure.

VERA GLADDEN: Do you plan to check the water again?

JAN ROGERS: I think it depends on what comes out of this study and confirmation with some permanent wells on the aquifer itself. But I would

guess that we will probably do some other periodic sampling just to be sure that nobody is being impacted, and that's also why we try looking at a lead edge. It minimizes the cost, because there is a cost involved in running those samples. And periodically, it's not going to change overnight, we may go back and look at it again as it pans out and we get more details about that aquifer down there and implement the system.

RALPH HOWARD: More questions? Yes, sir.

RAYBURN ROGERS: I have a question. My name is Rayburn Rogers. I own a lot on Woodcreek, by the lake. My question is this: you mentioned that the Proposed Interim Action

Plan, that you will get it into place probably in thirteen months; is that correct?

RALPH HOWARD: The Remedial Action itself. The plan is kind of only outlined in the Fact Sheet and so forth, but yes, sir.

RAYBURN ROGERS: Once you get that in operation, how sure are you that the plume boundaries will not expand over and beyond where they are now, and that the groundwater migration will cease to remain in that boundary?

RALPH HOWARD: The boundary itself is, as I mentioned, kind of a best approximation at this point. The way we operate is that even if ... as I mentioned earlier, even if that data is high, even if those results are high, we believe they're going to exceed the drinking water standard or we wouldn't be doing this tonight. If we didn't have confidence in that data, we wouldn't proceed with this.

The boundary may be located closer back to the site or it could be, even though our current data says that it's not, on the other side of Spears Creek, for example. With regard to I-20 and so forth, we're less certain. But we do have to establish where the boundary is.

Now as far as the certainty of preventing the migration, that I have a great degree of certainty in because it is achievable and it ... and we also use ... what we do to verify is, we don't just, you know, we

don't just take it on its word. We will put sampling in place, probably monitor ... well, there will be monitor wells that are located behind where we say the boundary is, because, to successfully do one of these operations, you have to have what we call a compliance point or a check point. So the idea there is, if I have a monitor well and it's behind where I say the boundary is, then that well should not come up contaminated. That's how we prove to our satisfaction that it is not going to go beyond.

And that's a good question. With the imprecision that I've already

mentioned, there should be some way of being certain that's it's not migrating and that is how we do it. That, there's not really imprecision with the monitoring. There's imprecision with the characterizing part. That's what makes it difficult.

More questions?

SANDRA MARTIN: My name is Sandra Martin, and I live a mile and a half from here. I work for the Pontiac school. We own property on a personal road straight to I-20, and I was just wondering if there's contamination ... (inaudible) ... I know it says on the bottom right here, the plume boundary is uncertain. Are you all going to be testing on that side?

RALPH HOWARD: The little marks that you see on the diagram

plus the ones on the Fact Sheets, those are sampling areas. It's kind of hard on the eyes to read it, but there's a little DPT there; those are all sampling points. So, as you see, we've drawn the boundary on the other side, meaning that those sampling points do show levels above the drinking water standard, with the uncertainty that I mentioned earlier. But yes, they do show.

Now, as far as whether that contamination is real, that we still don't know. We have data that says there is a chance that that is, there's a possibility that that level is higher than it should be. So do we know for sure? No. Do we suspect that it is? Yes, ma'am.

SANDRA MARTIN: What's the alternative? If I have my well water tested, what should I do?

RALPH HOWARD: Well, and I really didn't highlight this but I know that I mentioned it. We ... actually, the company, as a precaution went ahead, with our approval, and sampled seven of the private wells over there. They sampled ... I guess I won't go through the names, but they sampled all of the private wells that they could find anyone in a home to account for. They got them all except maybe one, and those were the ones I mentioned were below detection levels.

It has to be kept in mind that most of those wells

are deep in the sense that they are deeper than our samples are. Our samples are all from just the water table, which is the first place that you hit the water going downward. And most of those wells are deeper, but one or two of them are not particularly very much deeper.

So it's not clear what that means yet. It could be that the samples are reading way high, but probably not everywhere, they're not reading way high. That's what we have to find out, which is real. So it's not clear

whether that property between I-20, again, is a boundary. It may be a boundary, but we're going to find that out. That's what part of this Interim Action is about.

More questions?

WALTER TYLER: This is Walter Tyler. This may get into a legal question, but our property has been up for sale for two years. If I have a prospective buyer, I'd certainly want to show him this letter. It's elevated levels.

RALPH HOWARD: Right, and that's true, and if you sold the property soon, you should. But that will not be the last word on this.

WALTER TYLER: We will have ... (inaudible) ...

RALPH HOWARD: When we determine if the levels are real out there, the findings of that, you will know those

WALTER TYLER: But it's the well, not the site. It could be tested ...

RALPH HOWARD: Right ...

WALTER TYLER: A sample hasn't been taken out of the well to check ...

RALPH HOWARD: I'm not, honestly I'm not sure really why yours was not sampled. I don't know if you were contacted by Aquaterra about that or not.

WALTER TYLER: They went on the property and drilled two samples, but they didn't ...

RALPH HOWARD: Right, for which we ... right, that was in our agreement, but I can't say why your well was not sampled. But it's possibly because it wasn't being used, because it wasn't in operation, if water's not being used from it. But I think it would be a mistake not to draw a conclusion from those seven wells. The conclusion we draw for now is that we don't see it in the private wells. But that doesn't mean we're going to just accept that as the end of the thing.

WALTER TYLER: We'll have some future documentation on our property?

RALPH HOWARD: You'll have some future documentation that refers either directly to you or you will be able to see, you know, your property is affected or is not, yes, sir. We will not just publish the results and not make the property owners aware. We will make you aware.

More questions? Yes, sir.

BILL BOWERS: My name is Bill Bowers. I am one of the full time residents on this property on Woodcreek Lake. There's really only eight full time residents over there, and the four wells that you're trying to look at cover only the full time residents. It seems to me that it couldn't be too expensive to look at all the wells and check all those wells, at least for full time residents. We drink the water every day. I mean, it don't seem to me like it would take that much ... (inaudible) ... to test the water or take that much time ... (inaudible) ... Of course, we could see what we have over there and we also would know ... (inaudible) ... At one of the first meetings that we had, some discussions came up ... (inaudible) ... we talked about specifically the surface water ... (inaudible) ...

RALPH HOWARD: Please speak louder. I know she's having trouble reading you.

BILL BOWERS: Okay, I'm sorry. There is a concern, of course, with it getting into the drinking water and the fish ... (inaudible) ... so far the lake sample, you know, the state sampled ... (inaudible) ... about a year and a half ago ... (inaudible) ... But the great concern is the fish, because there's some bream ... (inaudible) ... and the bream come down the stream ... (inaudible) ... We don't know that. I think the confidence level, I thin

the people would feel much better if we say ... if you only inspect it for bacteria or things other than what ... (inaudible) ... If you don't, I believe that we will ask the property owners to take matters into their own hands and test it ourselves. I think it would be much wiser for you people to do it ... (inaudible) ... Jim is out there, he's my neighbor. He's out there all the time and he would probably consider himself permanent. There's probably about twenty drinking water wells around there. I think at least the eight full time residents should be tested ... (inaudible) ... The people who don't live there permanently probably feel the same way about it. It would give the people a little more confidence level if the wells that are consistently, constantly used were tested ... (inaudible) ...

RALPH HOWARD: The best answer is that that is a consideration, and it shouldn't be thought of that these four wells we're going to sample is the final thing. This is a start. Whether it leads to sampling all of them, I can't say. I guess at this point I can't promise you. But we will not avoid sampling those wells just because we don't want to do it. The cost is not ... we're not avoiding it because of cost; that's not the issue.

But we have to proceed kind of in a step wise, logical manner, and I'm not really sure it's possible to

completely satisfy you in that regard. But we do have some things that need to come out, where we have limited information and we're kind of acting in the dark here. One is the ecological assessment, but also there is the

issue of exactly where is boundary; and by that I mean, it cannot reach those wells but through groundwater migration. And a lot of what we're going to learn now is precisely that, is groundwater migration and extent.

So I guess what I'm saying is, we're not ruling out sampling all the wells, but, you know, we need to find out where that limit is or where the best data to show us that it is and then we could proceed to go ahead and get them all. It is precautionary. Like I said, we don't expect anything to come up with these wells.

BILL POWERS: We are all pleased that you're doing what you're doing. But most of us know ... (inaudible) ... over 90 percent ... (inaudible) ... we do want to contain it in that area ... (inaudible) ... To me, the ... (inaudible) ... thing to do is to get out where people are drinking water, get that cleared up. Continue with what you're doing, if you can do it, but I'd say that ... (inaudible) ... day it would take to check the water in the wells where people live. It couldn't take more than a day ... (inaudible) ... It couldn't take more than a day to get a sample, and I don't know how long it takes ...

(inaudible) ... to check those twenty wells ... (inaudible) ... that facility over there in a half a day.

JAN ROGERS: We hear your argument. Can we defer an answer? We hear your concern and I think we can look into it. One of the things I'll pick up, we need to look at the various other alternatives to get some of those wells sampled.

Right now, resources, you know, the company is paying for these things and we'd have to talk to the company. We'd also have to look at some other routes to getting something like that done that are available to us.

So we hear your comment. From a technical basis, we think we have a rationale as to why we only go out and look at that front edge perimeter. But we need to explore that other approach too.

RALPH HOWARD: I also want to point out and make sure ... because one thing you said that I want to take note of with the map, and that is that we have some wells that are actually closer, which would be those wells on the other side of I-20. At the time, we didn't even have the direct-push samples that you see on the other side of I-20. The company did propose to us that they go get those wells and sample them, and we said yes; so they did respond quickly. And there was such great uncertainty

about the possible effect with little or no data, and they were willing to do that, which was the appropriate thing to do.

We didn't know what to expect in those wells, those seven private

wells. And I think that that should be pointed out, that we have reacted to what we saw as the nearest, closest wells. At that time, the data were still leading away to the east, towards Spears Creek, and this is sort of a continuation of that idea of a precautionary response.

But that's not to say that the data may not lead us in that direction. We really have to consider, okay, what about the others? But as I mentioned earlier when I was talking to the one gentleman, the science of it tells us that it's unlikely that the contamination will simply go around and get to people who are more distant, because we know in this case where it's coming from. So by starting at where it's coming from and working outward, we look for a route and a pathway and a direction of movement, you could say. And that's what leads us, as a precautionary move, to get those wells and not just some others at random, because of their location and their position.

SHARON JACKSON: I'm Sharon Jackson with the Richland County Council, and I ... (inaudible) ...

RALPH HOWARD: Can you speak louder? She's ...

SHARON JACKSON: I wanted to ask about getting the rest of them checked because not too long ago you mentioned that some wells would test positive, others would test negative. I'm sure the county would be willing to help you any way they can, and will, to get these wells tested. You keep saying on the other hand. Well, on the other hand, these people are living here from day to day not knowing if the water they drink is safe. I am willing to work with you and I'm sure the county will work with you to get these wells tested. I don't think we need to put this off any longer.

And I would also like to see the documents that you have at the library, I would like to see them more simplified so people can understand them when we read them. We would appreciate you making them this thick (indicating), simplifying them a little bit where they can understand what they're reading and doesn't get ... (inaudible) ... where you fall asleep once you get past fifteen or twenty pages.

RALPH HOWARD: We have that problem quite often, to be honest.

JAN ROGERS: We really would like some suggestions on how to ... (inaudible) ... But, yeah, that's a dilemma. I mean, it's very, our standard way of doing business ... (inaudible) ... out to the public as far as ...

(inaudible) ...

RALPH HOWARD: You know, it's not something we can resolve tonight. I can't stand here and tell you we're going to do it, but these are the concerns that we need to hear. This is why we do this. We've got to find out how people feel.

SETH BRUCKNER: Please keep in mind that our office is available to answer any questions ... (inaudible) ... If there's something there that you can't figure out, there's a toll free number on the back of this document ... (inaudible) ...

RALPH HOWARD: Please do call us. I get quite a few calls, and, you know, it's part of the job. I enjoy it and I'd be happy to explain in details, in simple terms. But we'll take your recommendation under advisement.

Any more questions, please?

I appreciate it tonight. I wish you would stay if you like. We could answer any questions one-on-one, in whatever depth you'd like.

I want to close by thanking Mr. Inabinet, Richard Inabinet and his staff for providing our meeting place tonight. This is a beautiful school and, despite their initial reservations, we were able to convince them to let us meet here about the Townsend Saw Chain site, and it's been wonderful. It's a beautiful facility.

Compared to some of the ones we have to use from time to time, this is a palace.

If you would like to send in comments, please do in writing to me. There are additional Fact Sheets in the back if you do not have one. In the Fact Sheet, my address and so forth is in there. September 20th is when we'd like to get your comments by. However, if there is something that you would like to have further considered by us, then request an extension of that comment period. Just tell us in writing that that's what you're doing and here's why, what it is that you'd like to see addressed, and we'll proceed from there. Your comments get response and the Record of Decision has in it the comments that I receive from you, and I do mean every single one. So do not hesitate to write in.

And also, I want to mention that the Interim Record of Decision for this, after your comments are incorporated, plus the Feasibility Study which will have the ecological results in it, they're going to be added to that information repository down there at the library as things go along. And, depending on what we find out with this ecological work, we may choose to have another public meeting; because I hear a lot of interest about that tonight, and we may have some sort of public forum for that, a meeting or availability session.

Thank you for coming tonight. We appreciate it.

(There being no further discussion, the hearing was concluded at 8:50 p.m.)

CERTIFICATE

This is to certify that the Interim Action Proposed Plan Public Information Meeting for the Townsend Saw Chain Superfund Site, consisting of Sixty-five (65) pages, is a true and correct transcript of said meeting; said meeting was reported by the method of Stenomask with Backup.

I further certify that I am neither employed by nor related to any of the parties in this matter or their counsel; nor do I have any interest, financial or otherwise, in the outcome of same.

IN WITNESS WHEREOF I have hereunto set my hand and seal this 14th day of September, 1993.

Patricia Hall
Court Reporter

Notary Public for South Carolina
My Commission Expires: Jan. 21, 2002

(Recorded deposition tapes are retained for six (6) months from date of deposition or until transcript has been signed in cases where signature is not waived).

APPENDIX B

STATE OF SOUTH CAROLINA CONCURRENCE LETTER

November 3, 199

Mr. Patrick Tobin
Acting Regional Administrator
US EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30365

RE: Revised Interim Record of Decision (IROD)
Townsend Saw Chain Site
Richland County, South Carolina

Dear Mr. Tobin:

The Department has reviewed, commented on, and concurs with the Interim Record of Decision (IROD) for the alternative selected for the interim remedial action at the Townsend Saw Chain site. The alternatives for the

interim remedial activities selected by EPA include extraction and treatment of contaminated groundwater. The treated groundwater will be discharged to either a local publicly-owned treatment works, Spears Creek or another discharge option as determined appropriate. The purpose of the interim remedial action is to prevent or control the off-site migration of contaminated groundwater.

In concurring with this IROD, the South Carolina Department of Health and Environmental Control (SCDHEC) does not waive any right or authority it may have to require corrective action in accordance with the South Carolina Hazardous Waste Management Act and the South Carolina Pollution Control Act. These rights include, but are not limited to, the right to ensure that all necessary permits are obtained, all clean-up goals and criteria are met, and to take a separate action in the event clean-up goals and criteria are not met. Nothing in the concurrence shall preclude SCDHEC from exercising any administrative, legal and equitable remedies available to require additional response actions in the event that: (1) (a) previously unknown or undetected conditions arise at the site, or (b) SCDHEC receives additional information not previously available concerning the premises upon which SCDHEC relied in concurring with the selected remedial alternative; and (2) the implementation of the remedial alternative selected in the IROD is no longer protective of public health and the environment.

This concurrence with the selected remedy for the Townsend Saw Chain site is contingent upon the State's above-mentioned reservation of rights. If you have any questions, please feel free to contact Mr. Lewis Bedenbaugh at (803) 734-5211.

Sincerely,

R. Lewis Shaw, P.E.
Deputy Commissioner
Environmental Quality Control

CC: Hartsill Truesdale
Lewis Bedenbaugh
Keith Lindler
Rebecca Dotterer
Harry Mathi
Charles Gorman
Bill Galardi
Yanqing Mo